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January 1947
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Cessna 140
"See advertisement on page 7"

TL501
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Flightweight

BENDIX RADIO

REG. U.S. PAT. OFF.

V.H.F. "ALL WEATHER" TRANSMISSION

airline performance for your personal plane!

BENDIX RADIO FLIGHTPHONE PATR-10

Complete, 2-way radio package which combines in one unit: 1. V.H.F. 5-channel transmitter with range up to 75 miles, requiring only a 24" rod antenna. 2. Medium frequency range and broadcast receiver with connection for direction finder loop. 3. Internal power supply for receiver and transmitter. Dimensions of unit behind panel: Depth 6¾"; width 6⅝"; Height 5⅛". Weighs only 8 pounds complete, with shockmount.

Bendix—the greatest name in aircraft radio—now brings to personal plane operators all the advantages of very high frequency transmission. Bendix V.H.F. is the "all clear voice of radio" that cuts through any weather static and electrical disturbance.

Bendix FLIGHTWEIGHT* radio equipment has been especially designed for light-plane use—it is compact in size, light in weight, economical to buy and use and styled for the smartest plane.

Only in Bendix FLIGHTWEIGHT Radio will you find the background of experience, together with the specialized knowledge of aircraft radio which is your guarantee of "airline performance for your personal plane."

Look for the sign of Bendix FLIGHTWEIGHT Radio at better dealers everywhere. *TRADEMARK

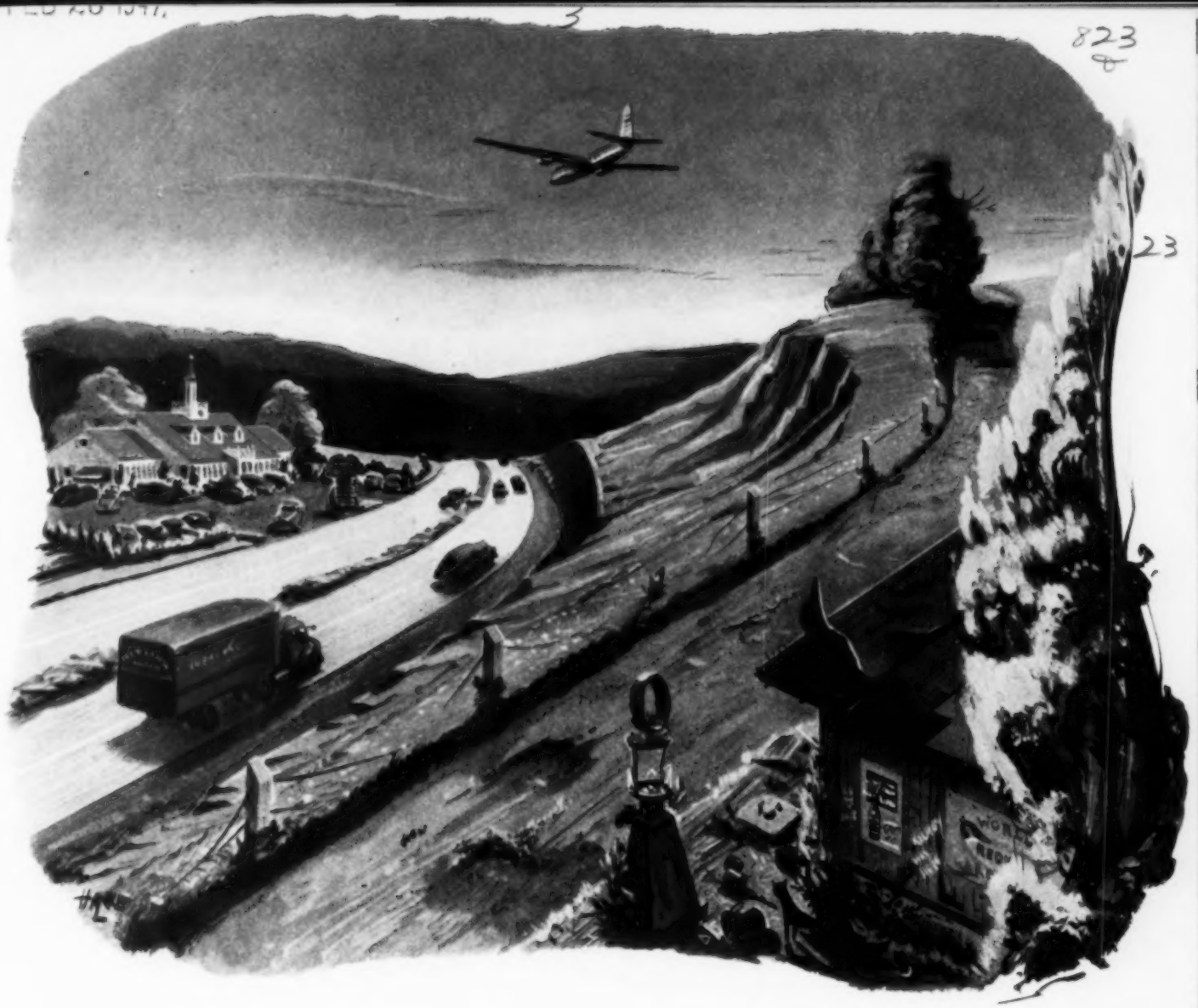
AUTHORIZED Flightweight BENDIX RADIO SERVICE DEALER

Look for the Sign of the Greatest Name in Aircraft Radio

BENDIX RADIO DIVISION • BENDIX AVIATION CORPORATION

Baltimore 4, Maryland • West Coast Branch—1239 Air Way, Glendale 1, California

PRODUCT OF Bendix AVIATION CORPORATION



The Familiar Lesson of the Super Highway

ENGINEERED
For Short-Haul Transport

Efficient short-haul air transportation calls for such specialized equipment as the Cyclone 7. Developing 800 horsepower, this engine embodies all of the refinements of the 2500 horsepower Cyclone 18. It is designed for rigorous conditions of ground running, take-off and climb. It provides the traditional fuel economy and reliability of the Cyclone.

The Cyclone 7 was projected and designed when the trend was toward larger transports. Its appearance coincides with the need for efficient, short-haul equipment. Similarly, Wright is now developing new and revolutionary types of power for the ultra long-range, high-speed airplanes of the future.

MODERN BUSINESS follows modern highways, in the air as well as on the ground. The familiar abandoned roadstand, snipped off by the super highway, points a lesson to all communities not yet served by air, for today a close-knit system of short-haul airlines is spreading out. No modern city or town, with hopes of growth, can afford to let the air routes pass it by.

POWER FOR AIR PROGRESS

WRIGHT
AERONAUTICAL CORPORATION
Wood-Ridge, N. J.

CURTISS WRIGHT

My Float Base Cost only $116

"From June to September, Lake Tahoe is one of the most popular of all California resorts. Flying floatplanes, from a base that cost only $116, enables me to cash in on the rush season up here each summer. The gross is good, without tying up money in real estate or airport maintenance. And float flying has made my base the social center of the lake."

— Part of a letter from Wes Stetson, Emerald Bay Resort, Lake Tahoe, Cal.

RESORT BASES ARE BONANZAS

Wes Stetson operates the highest float base in America – 6,275 feet above sea level. He moves in and out with the seasons, with all airport construction and maintenance handled by Nature. And floats put him right in the center of a crowd ready for fun and flying.

Any resort on or near water, and with a good annual volume of visitors, is ideal for float operations. Vacationists have leisure, money and a desire for sport. Flying forms a strong attraction for them, more so if from water. And resorts are a natural destination for transient flyers – to add more dollars to an operator's revenue from fuel and service. Resort managements are usually cooperative, for a float base brings in more visitors, gives them more choice for recreation and adds to the modern appearance and prestige of the place.

↑ Potential customers find Wes Stetson's float planes convenient on this Lake Tahoe beach.

Day in and day out, float planes are the biggest attraction for visitors to this California resort. ↓

MANY SITES AVAILABLE

Resorts dot the map from Canada to the Gulf. Thousands are good spots for new floatplane bases. And it doesn't take much capital to start. Stetson spent only $116 for a base. A Lake Champlain operator used a strip of beach all season, spending exactly zero for ground facilities. If you want to operate floats seasonally, one or more planes and a few dollars for a base will put you in business. If you pick a year-round site you can start with a modest dock or ramp and build as you go. Your cash comes from such things as flight instruction, sight-seeing, charters, rentals, transients, storage, gas and oil and maintenance. Plus whatever side-lines you want to put in, such as water sports or fishing boats.

HERE'S INFORMATION FOR YOU – You can get details on float bases – sites, construction, costs – by writing to Edo Aircraft. Free copies of "Air Harbors" and "Float Flying" and "The Flying Fish" will be sent to you at once.

EDO AIRCRAFT CORPORATION 270 Second Avenue
College Point, Long Island, New York

Edo FLOATS FOR REAL FUN IN FLYING

Gleam in the Eye of a Navy Cadet

From the moment a Navy flying cadet arrives at his flying field barracks, his eyes and his heart are on "the line."

For there rests his first love, the plane in which he will learn many of the precise and efficient practices of Naval Aviation.

A new plane for "the line" at Naval training stations has flown its first tests—a primary trainer that looks and "feels" like the shipboard fighters some of the cadets will eventually fly.

Sleek, clean-lined, powerful, and with new safety features, this latest product of Fairchild design and engineering development is the XNQ-1. It embodies flight and safety characteristics never before attained in a plane of this type—characteristics that a farsighted Navy specified for the ideal training airplane.

Careful research and engineering skill mark the XNQ-1, as they mark all Fairchild products, with "the touch of tomorrow." These engineering skills won for Fairchild the XNQ-1 contract in a competition among the nation's topflight designers—a competition sponsored by the Navy's Bureau of Aeronautics.

XNQ-1 Navy Specifications

Tandem, 2-place, low-wing, all-metal monoplane.

Flaps, retractable landing gear.

Controllable pitch propeller.

One-piece "bubble" canopy affording all-around vision.

New, Navy-developed safety cockpit.

Power plant—320 h.p., 9-cylinder Lycoming in a Fairchild-designed "power package."

Speed—170 m.p.h.

Rate of Climb—1,000 ft. per min.

Stability and control of carrier-based aircraft.

Fairchild Aircraft

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland

The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

Got a couple items here you ought to know about.

First one's about a trip from Boston to Dayton by one of the airlines. They piled all the furnishings of a house into a plane for the hurried journey. Then threw in the house! A pre-fab. job it was, complete with porch.

Another bit we like: One of the biggest manufacturers of warplanes—they turned them out by the tens of thousands during the war—is keeping the wolf away by *subcontracting* for three putt-putt makers!

And the P-80's are so fast that a heavy rainstorm can scratch and nick wings to the tune of a 15 mph loss in speed!

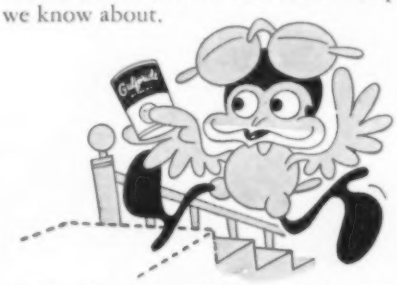
Aren't we in a wonderful business, fellas?

WATCH YOUR STEP

We've been hearing about a wonderful extra step.

You add this extra step to the top of a flight of stairs. Then when you get to the top of the stairs in the dark, this extra step prevents you from putting your foot down on thin air!

That makes two wonderful extra steps we know about.



The other one, of course, is the extra step we add to the "top" of the refining when we make Gulfpride Oil. We call this extra step the "Alchlor Process," and what it does is to get extra of the unstable molecules out of the oil, leaving fewer carbon and sludge makers.

And because of this extra step, Gulfpride Oil is extra tough and rugged and prevents your pistons from coming down on thin air!

LITTLE KNOWN FACTS DEPT.

"GERMAN planes with AMERICAN engines were used by the BRITISH against the ITALIANS in AFRICA!"

Lt. Peter M. Bowers, Wright Field, goes on to prove his Little Known Fact About Well Known Planes with: "The RAF requisitioned Junkers Ju-52's with P&W R-1690's from South African Airways to use as transports, early in the Libyan campaign," thereby adding a commission as "Perch Pilot (bottom rung)" to the "1st. Lt., Air Corps" he already has.

And G. Grahame Duce, Baltimore, gets a commission for this Little Known Fact (with proof!):

"Compressibility was encountered in the Army's P-3 of 1928 at a speed of only 110 mph! (The exposed radial engine cylinders were responsible.)"

. . . and another "Fact":

"When the plane travels 550 mph, air passes over the thickest part of a P-80 wing at 650 mph!"

That means that with 3 more acceptable (and proved!) Little Known Facts, Perch Pilot (br) Duce will become a Senior Perch Pilot!

You too?

Just mail us your "Facts"—and proof—and you may win one of the most precious commissions since the birth certificate was invented.

Address above.

Gulf Oil Corporation and Gulf Refining Company...makers of

GULF **GULF AVIATION PRODUCTS**

PILOTS, ATTENTION!

You've still got time to make the Sixth Gulf Air Tour to Florida, January 2 to January 26. All you need is a plane, the desire, a map, and an application which you can get from Gulf airport dealers.

AND IF YOU'VE GOT 125 HP (or less) THE GAS AND OIL ARE ON GULF! FREE!

This is our contribution to the advancement of private aviation. See you in Florida.

AL WILLIAMS

JANUARY, 1947 VOL. XXVII, NO. 1

Southern FLIGHT

Including MODERN AIRPORTS

Revving Up

CULVER'S MODEL V-2: Incorporating important improvements over the Model V, Culver's new V-2 has a much lower stalling speed, a 30 per cent faster rate of climb and a "Simplify" modification allowing ten degrees of stabilizer movement beyond the interconnected flap control. Dihedral in the wing tips has been cut in half to 8 degrees and, wing tips are squared. The under-belly flap has been eliminated and split flaps installed, with the wing's trailing edge filleted into the fuselage. A longer nose changes the appearance somewhat.

AIR TOUR TO PANAMA: Pilots everywhere are invited to enter the Inter-American Lightplane Cavalcade to Panama which will start at the Piper factory, Lock Haven, Pa., on Feb. 1, according to Col. John C. L. Adams, Panama distributor who originated the 28-day tour. Night stops will be at Lexington, Ky., Memphis, Ft. Worth, Houston, Brownsville (3 days), Tampico, Veracruz, Tehuantepec, Tapachula, Guatemala City, Santa Ana, Nicaragua, San Jose and Panama City.

ROUNDUP: Navions delivered as of late December totaled 125 with 459 airplanes awaiting factory flight test. . . . Lockheed is demonstrating the Constellation, six or so of which are available for immediate delivery, to several airlines including Braniff and Delta. . . . When Engineering & Research Corp. closed down temporarily in December, 172 Ercoupes were on the lot. . . . It's Mr. and Mrs. Roscoe Turner now. The bride is the former Miss Margaret Madonna Miller of Sheridan, Indiana.

RESOLUTIONS AND THE LIKE: It's going to be quite a year, this new one. But we're ready. Just when we needed it Leighton Collins, editor of "Air Facts," came through with a five-buck advance order. But we had to look twice, for Leighton's fiver turned out to be a Confederate States of America issue of Feb. 17, 1864, printed at Richmond. We've had some of those before. But from Leighton? We called the house to order blackeyed peas and corn pone for dinner and accepted his five-spot as legal tender. For luck in '47.

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HANGAR FLYING

LOCKHEED

Hummingbirds vs. Constellations

Hummingbirds, who hold the record, can fly 600 miles without refueling. And it doesn't take a John J. Audubon to figure out that hummingbirds are probably pretty tired cookies when they land. But the *Constellation*, no slouch itself when it comes to records, can now fly more than 4000 miles nonstop without even breathing hard—thanks to its new long-range wing.

The wing adds about a thousand miles to the plane's range. An extra tank inside each of the two outer wing panels increases gasoline capacity by over a thousand gallons—with a weight

increase of only 600 pounds (exclusive of the gas, of course).

And, according to certain cabalistic signs which engineers love to make on graph paper, the payload of such *Constellations* is doubled in the latter stages of a flight. Money in the bank.

Adding another thousand miles to the long-range *Constellation* may sound like gilding the lily. If that's what it is, Lockheed spends an important part of its time lily-gilding—constantly making the *Constellation* a better plane. And making better hangar flying, too.

L to L for L

© 1947, Lockheed Aircraft Corp., Burbank, Calif.

AIR Report

Cessna Steps Ahead

Cessna Aircraft Company finished 1946 with a record of delivering approximately 4,000 airplanes and with production during December reportedly running at 30 airplanes per day. Cessna's still-secret 5-place Model 190, to be offered either with 240-hp. Continental or 330-hp. Jacobs, was expected to be NC'ed late in December or early in January.

Two New Single-Seaters Revive Market Speculation

Luscombe has finally confirmed reports that its all-metal single-seater, announced a year ago and destroyed by wind on the ground last spring, has been abandoned and will not be produced. Lockheed's Little Dipper is now hanging beside a dry well. But in other quarters faith in low prices as a market stimulant has been revived recently, with the 2-place market ebbing at near saturation. Two new single-seaters will soon enliven speculation. One, now 30 per cent completed, will be powered by a liquid-cooled 24-hp. engine and its well-known designers, working in secrecy, expect a 100-mph. cruising speed and a selling price ranging between $1,000 and $1,200. The other new contender will use a 45-hp. engine and shoot for 120-mph. cruising, with a projected selling price at $1,500. Low price, maintenance and operating costs are hoped to allow operators to sell time in the midgets for $2.50 to $3.50 per hour. "Give 'em performance at low price and you've got a new market," one veteran industry leader has contended. "We've got it in our prototype, but we can't say too much yet." Both of the new contenders have tricycle gear and the 45-hp. prototype is all-metal. An interesting sidelight is Piper's position—its single-seater Skycycle is on the sidelines at the moment but ready to go when the opportunity arrives.

Ten-Fold Continental Expansion Paces Lightplane Industry

A reliable gauge to the lightplane industry's future might be found in the log of advance orders for engines, but even that is subject to "ifs". C. J. Reese, president of Continental Motors, reveals he already has orders from airframe manufacturers for approximately 99,000 engines to be delivered in 1947. Continental delivered approximately 34,000 lightplane engines during 1946—ten times the number delivered in 1941. Advance engine orders for 1946 had topped the 100,000 mark, three times the number actually delivered when the year was out. But it would be unwise to estimate 1947 production by taking one-third of the 99,000 engines on the books. Reese himself is confident the new year will equal or surpass 1946 in lightplane production, barring a general economic setback. Continental's tremendous expansion of aircraft engine production is graphically shown in the following figures:

Year	Engines	Year	Engines	Year	Engines
1938	803	1941	3,423	1944	2,709
1939	1,841	1942	4,601	1945	5,229
1940	3,053	1943	3,893	1946	34,000

Cleveland Show Attendance Disappointing

The National Aircraft Show at Cleveland last November failed to attract the paid admissions originally hoped for. Consensus of opinion was that it provided an excellent meeting place for the trade, but the cost was not warranted by the disappointing gate receipts. Backers of the Show are no longer talking about three shows a year. Many are even bearish about one show unless future displays can attract more interest.

National Soaring Meet for Texas

The Soaring Society of America 1947 annual soaring meet will be held at Wichita Falls, Texas, July 4-20. More centrally located for participants than was the old site on Harris Hill, Elmira, New York, the North Texas site offers better thermal conditions plus opportunities to break existing international records because it is not hemmed in by the Atlantic Ocean on the East or the Great Lakes and Canadian Woods on the North. National distance records were established from Wichita Falls in prewar soaring contests.

Announcing

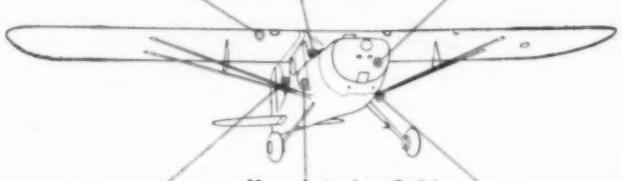
Better-Than-Ever Cessnas for 1947

NEW SAFETY — NEW UTILITY — NEW COMFORT — NEW PERFORMANCE

New Noiseless All-Weather Ventilation System affords airline-type control of fresh air flow into the cabin. No rain can enter in flight or on the ground.

New Shock-Mounted Instrument Panel, with rheostat light control, combines functional design with ultra-modern styling for longer instrument life and greater accuracy.

New Streamlined Cowl Design enhances the smart, clean, modern lines that have always distinguished Cessna styling.



New Foam-Rubber Seat Cushions mounted on no-sag springs afford the utmost in cross-country flying comfort. Seats are adjustable.

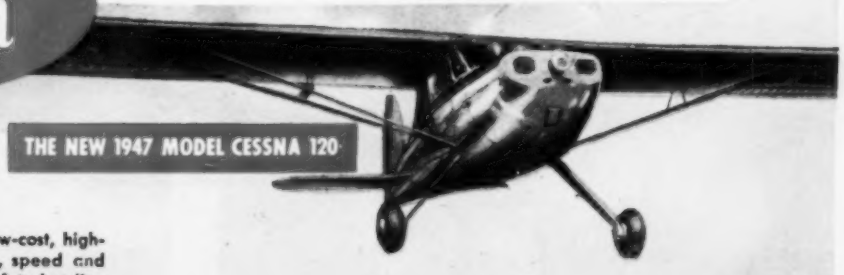
New Interior Cabin Styling is achieved with the very finest quality two-tone fabrics and genuine leather, for greater life and beauty.

New Muffled Exhaust greatly reduces the noise level, outside as well as inside the cabin, permitting normal conversation in flight.

The features shown at the left are a few of the many new innovations that Cessna brings you in the 1947 models. In addition, Cessna offers you longer life, less maintenance and greater safety with its all-metal construction, patented safety landing gear, 80-pound luggage capacity, 450 mile range and a top speed of over 120 m. p. h. Powered by an 85 h. p. Continental engine, the new 1947 model Cessna 140 sells for only $3245.00 (f. o. b. Wichita). See all these features that Cessna alone gives you at your Cessna dealer's now.

CESSNA AIRCRAFT COMPANY,
DEPT. SF, WICHITA, KANSAS

Cessna
THE PILOT'S AIRPLANE
ARMY ★★★ E ★★★ NAVY



The station wagon of the Cessna line, this low-cost, high-utility plane is identical with the 140 in size, speed and performance. With all-metal structure and safety landing gear, but without starter, generator, battery or flaps, and with a less luxurious interior, it is ideal for training and general utility service. Only $2695.00 (f. o. b. Wichita).

A GOOD EXAMPLE OF SAFE FLYING

● Oliver C. Thener, Vice President of the B-1 Beverage Company of St. Louis, Missouri, is an experienced businessman-pilot. In the past twelve months he has flown more than *ninety thousand miles* in the company's Ercoupe calling on franchised bottlers in thirty-eight states. Mr. Thener believes in flying . . . in *safe* flying. He believes it's just plain common sense to prepare for emergencies. That's why the B-1 Ercoupe is equipped with Irvin CHAIR Chutes . . . for extra protection.

More and more plane owners are installing these new Irvin CHAIR Chutes in their planes. Our descriptive circular will give you full particulars about this unusual parachute. Why not write for it . . . now.

IRVING AIR CHUTE CO., INC.
1670 JEFFERSON AVENUE, BUFFALO 8, NEW YORK
Pacific Coast Branch: 1500 Flower St., Glendale 1, Calif.

IRVIN Air Chute
The Life Preserver of the Air

Southwest Parachute Co., Leon McKennon, Pres., 4347 Lovers Lane, Dallas 5, Texas. Distributor for Texas, Oklahoma, Arkansas, Tennessee

← Irvin CHAIR Chutes installed in a Beechcraft. CHAIR Chutes have the same comfort and beauty as deluxe airplane chairs... do not take up extra space.

Irvin CHAIR Chutes installed in a Stinson. CHAIR Chutes are fitted into the back of the chair . . . don't have to be carried around, worn or stored. →

FEEL SAFER . . . BE SAFER . . . with the new Irvin CHAIR Chute

Just among ourselves

EDITORIALS

PROGRESS IN DISGUISE?

MANY aviation enterprises from the largest of our air transport companies and manufacturers down to the little grass root airport operators and airplane dealers are going through some mighty tough times as we enter 1947. The false prophets who are trying to explain our troubles away because of "seasonal" factors aren't fooling anyone but themselves and we humbly suggest they make their exit along with those who limited their reading to the Sunday supplement aviation yarns and are now departing our company. In the wringout we are going to be well rid of a lot of crooks, promoters, quacks and parasites along with some honest but unfortunate folk who failed to recognize the facts of life and the peculiar technical aspects of aeronautics.

The complex problems and headaches of our industry at the beginning of the new year largely stem from unnatural wartime growth, which was so staggering in size and speed and of such long duration, many old-timers even forgot what normal prewar aviation years were like. The day of reckoning had to come but let there be no doubt about the industry's ability to weather the gales and survive the present temporary hangovers of the readjustment period . . . just as the industry produced the impossible during the dark days when we stood on the brink of national disaster for lack of air power.

No matter how tough the transition from war to peace might be, we hold that the return of the old prewar competitive system, when Uncle Sam isn't the only customer, is progress in disguise. The sooner the competitive process comes the better.

Save for the almost complete dissipation of American air power until we are once again, just as in pre-Pearl Harbor days, a second-rate nation in air strength, 1946 was the greatest peacetime aviation year in history and it should be held in great respect. Despite the fact that the military services took less than 1,500 military airplanes during the year, you can't talk away the 35,000 personal planes and nearly 500 transports produced for the private and commercial market. Nor can you discount the fact that we now have upwards of 80,000 registered civil airplanes as compared to less than 25,000 in 1941. Given stable economic conditions during 1947, the total aircraft registration figure should hit 100,000. In 1939 only 12,000 planes were registered.

The impact of war trained pilots and the present GI program helped to boost the number of certificated pilots from 297,000 in 1945 to around 400,000 at the close of 1946. Similarly, student pilot certificates issued in 1946 hit 170,000 compared with only 77,000 in 1945.

Other factors contributing to a good year include a tremendous increase in the number and size of investments in commercial aviation, largely in the field of airport service operations and non-scheduled air carrier enterprises. The scheduled air transport operators practically doubled the number of passengers carried in 1945. The Civil Aeronautics Board lost some of its lethargy and started processing the tremendous backlog of applications for certificates of convenience and necessity. The CAA accomplished a lot of necessary preliminary work on its $500,000,000 National Airport Program and made considerable headway in the simplification of civil air regulations.

A lot of good seed was planted in the first postwar twelvemonth which will bear fruit this year and in years to come, especially from the standpoint of technical developments. Notable accomplishments were in the realm of instrumentation and automatic flying aids for all weather flying; perfection of the helicopter; rapid advancements in jet power plants, in propellers for war-tested reciprocating engines, in flying wing design and in the field of guided missiles. Aviation is knocking on the door of supersonic speed ranges with the aerodynamicists predicting the solution to many of the mysteries and problems of supersonic flight just around the corner. You simply can't sell the old year short.

But the fact that many companies failed to show profits commensurate with gross business and the fact that overall Federal aviation policy is as sad as it was in the years before the war certainly will temper any unbridled optimism regarding easy sailing and sunny skies throughout 1947. These two major circumstances are symptomatic of some industry and government ills which must be cured if U. S. aviation is to go forward in seven league boots. Until the industry honestly admits and thoroughly understands the necessity for every branch of the family to work together in harmony on serious common problems during the year ahead, we'll remain a house divided against itself with a thousand and one aviation organizations and spokesmen creating a veritable Temple of Babel while local, state and Federal governments appropriate, legislate and tax us out of business. There's no need to waste space in publicizing the internecine warfare within our ranks now being stimulated by far too many of our own people who apparently prefer to blaspheme a competitor, engage in rumor mongering and cut-throat tactics than to get on with the serious common jobs that face us at the turn of a new year.

If a little philosophical observation is permitted as we turn out the old year and ring in the new, we venture to state that our industry's present postwar hangovers are proving so disagreeable they might force us to mend our ways, get together and work in unison and harmony not only for protection from the easily recognized enemies who are shooting both barrels from every side, making legion of many aviation growing pains, but also from the enemies within our ranks—the false prophets who are selling aviation down the river by recommending government policies that are bound to stymie military, commercial and noncommercial personal aviation and throw us back about ten years. ★ ★ ★

When Your plane is equipped with

The

SWITLIK CHAIR CHUTE

You Don't "Have to Wear It"
You Don't "Have to Carry It"
You Don't "Have to find room for It"

BUT IT'S ALWAYS THERE! . . . concealed within the upholstery of each chair . . . ready for instant use at all times. It does not alter or sacrifice comfort or beauty. For full particulars–

Clip the Coupon and Mail to

SWITLIK PARACHUTE CO., INC.
Trenton 7, New Jersey, U. S. A.
Dept. SJ

I am interested in equipping my airplane with parachutes. Please send me descriptive literature and price lists on the various Switlik Models.

NAME _____

ADDRESS _____

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Flying Low to Mexico

By L. B. HASKINS

Photos by the Author

AFTER a 3,000-mile flight to Mexico City and return in our 65-hp. Luscombe, we have no narrow escapes to recite—back now, my wife and I seem a disappointment to friends.

That breath-taking downdraft, the iced carburetor that forced a landing among hostile natives, tortillas and water in a dismal dungeon and the like are all missing from our international air tour—proof that flying down to Mexico can be enjoyable.

There should be no close shaves in Mexico for other average private pilots provided: (1) they fly good airplanes; (2) they fly during the right time of the year; (3) they have plenty of time on hand to cope with Mexico's *manana* philosophy; and (4) they possess a fair set of nerves and follow the coastal route to Veracruz before crossing the hump.

The answer to the right time of year is to get in behind the ducks. They fly south during September and October and anytime from then on through February is the dry season in Mexico when non-flying days are in the minority.

Routes for such a flight from anywhere in the United States east of the Rockies converge, more or less, through Dallas. From here it is just a few hours flying to Brownsville down on the border, the most convenient port of entry.

Total flying time for us from Dallas to Mexico City in a new 65-hp. Luscombe Silvaire was 19 hours going and 15 hours and 30 minutes returning, averaging 105 mph. Headwinds accounted for the slow time while flying south.

Our first thought after landing at Brownsville's Rio Grande International

Stops made by the author during his lightplane flight to Mexico City are shown by arrows. Following this coastal route, the private flier has an excellent beach handy for an emergency landing and needs to fly at 10,000 feet only during the last portion of the hop from Veracruz to Mexico City.

Airport was to have the Luscombe fueled before leaving it for the night. A tank not completely filled invites condensation during Mexico's extreme temperature changes after sundown. Then we turned our attention to customs, immigration, CAA and health.

Going Through Customs

R. E. Puckett, customs broker and well-known around the turnstiles of the border, was the subject of our immediate search. His desk was found in the center of the airport's administration building. For the custom's record, they ask to know: name, age, marital status, sex, occupation, nationality, home address, farthest distance going in Mexico, NC number of plane, owner, his address, the pilot's name, address, license number, type, etc., number of passengers, length of stay. Puckett's broker fee is $7.50.

For tie-down and landing charges here, we paid Airport Manager T. Crixell a $1 fee. A cabbie charged 50 cents to take us four miles to Brownsville.

When ready to clear, the portfolio should include: a tourist pass for each person (better get it before leaving the home town); an outward manifest of aircraft signed by the inspector of customs; a CAA foreign flight authorization and certificate of civilian flight permission from the Mexican government.

Approximately an hour's flight down the beach from Brownsville is Eighth Pass, a lagoon widely known as fishermen's paradise. An east-west landing strip permits short, on-the-dime landings and take-offs. After a couple of tries, we set the plane down for a visit with the lone attendant.

On down the beach another 75 miles is grass-thatched Pesca, located at the mouth of the Marina River. *Pesca* is Spanish for "fishery." Here is located a medium-size east-west runway. The fisherman big-game hunter can satisfy both whims at his front and back door.

Mexican Customs Requirements

The first fifteen minutes in Tampico we learned that Mexico takes its siesta religiously. We landed on the fine Pan American Airways airport at 12:30 for our official entry into Mexico.

A victim of submarine warfare, this wrecked freighter (top) marks another check point along the coastal route from Brownsville to Tampico. At a private airport in Tampico (left, center) attendants pour 73 octane through a chamois strainer to insure clean gasoline. Only 80 and 90 octane were available at other stops. Radio stations along the coastal route (lower left) provide points ahead with the private flier's departure time and estimated time of arrival.

Brush burns between the paved runways at Veracruz's modern landing field (top right). Leaving Veracruz, the private flier tops over rolling lowlands to Orizaba, then must climb to 11,000 feet for a 20-minute flight over rugged terrain (right center) before reaching Mexico City. Just after landing at the Mexico City municipal airport, (lower right) the author's Luscombe is checked by an airport attendant.

Senor Rafael Fuentes, square-shouldered, good-looking airport manager, gave us a cordial welcome but it only paved the way for a two-hour wait . . . all essential custom, health and immigration officials were at siesta.

An important adjunct to our traveling necessities was added here, a Spanish-English dictionary by Wessely and Girones. It did much to further the humorous side of our conduct towards the Mexicans. Surly faces beam while a fumbling tourist hurriedly thumbs through a little red dictionary looking for a key word to continue the conversation with.

About 2 o'clock custom, health and immigration piled out of a taxi and gathered around a table to look us over. Thanks to the efficient mothering of Puckett back at Brownsville, our papers were in order. Broken down, their fees were: 7.33 pesos to health, 15 pesos to customs and immigration and 33.16 pesos for "servicios extraordinarios." This last amount was divided up three ways right in front of our eyes.

Two of the worse drawbacks to private flying in Mexico are the scarcity of 73 octane gasoline and good aeronautical maps. AAF maps, available from Washington, give very accurate topographical identification but lack the distinguishing marks of our navigation charts such as the familiar roundhouse, water tower, mills, power plants, etc. For 73 octane gasoline in Tampico the plane was flown across town to a small commercial airport located in the center of the oil refinery area. As I circled the field a boy on a horse drove cows and horses from the landing area so I could land with safety. A 50-gal. drum of 73 octane gas was rolled out and two five-gallon cans were filled to pour through the special chamois skin funnel arrangement.

Since Tuxpan, the next landing point, is only about an hour of flight from Tampico, the exit from the latter place can be made anytime, weather permitting, until late in the afternoon. Tuxpan is a former pirate hangout and is well worth a visit.

Typical of the care and diligence with which Pan Am's airport officials keep track of their planes every minute is evidenced here. A radio operator and assistant manager are in charge of

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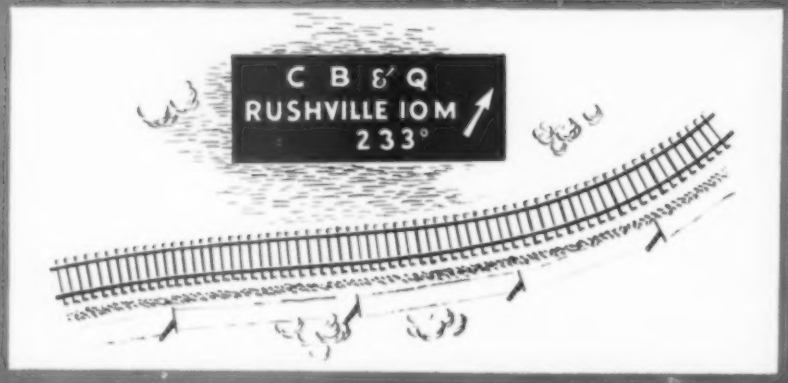
A transcontinental flight without radio brought new freedom to this pilot. Following railroads and highways can sometimes be the safest and most enjoyable navigation.

THE LONG WAY 'ROUND

By DEVON FRANCIS

Identification markers placed at 20-mile intervals along major highways would greatly aid lightplane pilots who fly without radio, the author believes.

Located along widely-used cross-country routes, river marker (above) and railroad identification (below) would give private fliers distance and heading to nearest airport.



BARELY thirty minutes had passed since I took off, and nothing on the ground matched anything on the sectional map. Visibility was down to a bare half-mile but the air was smooth. That gave me a chance to study the terrain in detail. For the twentieth time I rechecked my compass heading. I ran a finger over the map for a dozen miles on either side of my course. Still nothing matched.

Reluctantly I conceded I was lost. This was a promising start on a 1,400-mile ferry flight to Fort Worth. If I couldn't navigate over a few miles of New Jersey, I asked myself, how was I going to fly this thing all the way to Texas?

I had been apprehensive from the start. That was why I had flown the Super Cruiser from the Piper factory at Lock Haven to New York to pick up a radio before launching on the trip. The idea had been good. But the airplane's ignition system wasn't shielded, and only hash came out of the earphones. Now I was in a pickle. I put the map away. Beyond the nose of the ship objects on the ground kept assuming shape through the mist, like chemicals coming out of solution.

Something black and sinuous caught my eye. In a few seconds it became a railroad. That was good. It was a four-track railroad. That was even better. A four-track railroad had to lead to a big city. A big city had to have an airport.

It was only ten minutes until I was on the ground. That was not too soon. Some stuff that Airways Weather had not anticipated was moving in. I was through flying for the day.

That night I took stock. Patiently I had either to give up the idea of flying this airplane to Texas, or in the absence of a beam receiver I had to do a better job of pilotage. I got out my sectionals and studied them. I had forgotten how exquisitely they were made. I traced the courses of rivers bounding and

crossing my route. I looked at the forbidding stretches of the Appalachian chain and on the borders of the maps made notes on the altitudes of the ridges. Particularly I studied the networks of railroads and major highways. The Pennsylvania Turnpike snaked through the Alleghenies for 160 miles. Only a blind man could miss it. A short distance beyond that a man could pick up U. S. Route 40 and follow it all the way into St. Louis. From St. Louis to Kansas City the Missouri River would be a constant line of position.

Slow But Sure

It would be the long way 'round. I knew that. But I had been lost, this day, in poor visibility. I had been lost a good many times before in seven years of flying. I had known the agony of trying to match terrain and map while the sun marched irrevocably toward the horizon and the fuel needle sank toward the "E" on the dial. I wanted to enjoy this trip to Texas.

I had made up my mind. Instead of trying to adhere to a course dictated by a straight line drawn on my planning chart from New York to Fort Worth, I would take the easy way. I would dog-leg. Much of this ground I had flown over before, with a beam receiver. A casual familiarity with it would be an advantage. Moreover, there were the rails and highways, running relatively straight and true.

It was long past midnight when I went to bed. I slept soundly. I wasn't worried any more.

The decision to abandon my original straight-line course through Pennsylvania, West Virginia, Kentucky and Arkansas was a sound one. An hour of following the Turnpike convinced me of that. It curved far south of a crow's flight to my first refueling stop, at Columbus, Ohio, but it was a constant line-of-position. I had only to figure my ground speed periodically, estimate my elapsed time and watch the weather.

Here and there were patches of clouds. The engine was smooth. The sun made a shiny, metallic pattern on the disc of the propeller. I gawked at the scenery for minutes on end without referring to the map. I didn't have to. There was the Turnpike below me. Even the wind was no bother. The highway provided me with an instantaneous check on drift.

As I put the airplane down at Columbus I was wondering why I had punished myself for these several years by trying to navigate on a straight line. The simplest answer was that I had been taught to do it that way in the beginning. To get my license the government had made me do problems in drift, variation and deviation correction, and I had to get lost a couple of times before I learned not to take the winds-aloft report as Gospel truth. My textbooks had told me that this vehicle I was mastering, an airplane, blithely vaulted mountain and desert. Not for it was the tortuous, 'round-about highway of the earthbound automobile, not for it the looping, dodging course of the railroad train. My airplane would fly the shortest distance between two points. What my textbooks didn't tell me was that in the course of an hour's flight whole towns and cities could be moved bodily from one locality to another. Where my painful calculations said they had to be, they weren't.

But now I had learned. I was without a radio to take advantage of the government's multi - million - dollar range system. I was following the highways and the railroads, even as the pilots of Jennies had followed them a quarter of a century before. I blessed the men who had invented the automobile and the locomotive. My system of navigation took a little more time and gasoline, true, but it was far less brutal on the nerves.

There was only one more thing needed to make my satisfaction complete. Something was missing. I sensed it, but I didn't know exactly what it was as yet.

Concrete "Fix"

The visibility had been good as far as Columbus. Now it began coming down. Once again in the air and the nose of my airplane solidly latched to U. S. 40, I checked my ground speed, verified the time of official sunset, subtracted thirty minutes from it to be on the safe side, and settled back with my map to dismiss one by one the cities and towns that marched by below me. I felt smug. This was much better than anxiously watching the compass. What was it my textbook had said about lining up two objects on the terrain ahead, and then lining up a third one with the second, and a fourth with the third, and so on until I got where I was going? I didn't have to. By grace of Detroit industry and state gasoline taxes, aided and abetted by money from the Federal treasury, I had a line-of-position underneath me etched in concrete.

I flushed Indianapolis exactly when my computer and wrist watch said I would, and circled its rococo monument in sheer exhilaration. At last I was getting some fun out of flying.

At my night's stop, in western Illinois, I chinned with the man who ran the airport.

"Get much traffic through here?" I asked.

"Yes," he replied, "quite a bit. We're on Route 40."

"Airplane traffic, I mean," I corrected him.

"Sure, airplane traffic. Lots of lightplanes follow Route 40."

Something had been bothering me all day. Now I knew what it was. It was a vagrant sense of shame for having navigated on highways. Now, of a sudden, it vanished.

From St. Louis I struck off boldly across Missouri. I knew the easiest thing to spot from the air was water, and the river was never more than thirty miles from my course. I deliberately eschewed a course through southwestern Missouri and southeastern Kansas. I had flown across that arid, heaven-forsaken country before, and it had taken four slugs of Pinchbottle to revive me when finally I got my airplane down.

Gradually I began collecting dividends on my pantywaist navigation system. If I was careful to keep a check on my ground speed, I reasoned, and made a judicious study of the railroads abutting my course, I could strike off cross-country. I needed only to establish my drift after take-off, using my compass not as a direction-indicator but only as a reference point. If I missed a couple of check points, I would know nevertheless about where I could pick up a railroad.

It worked. I gained confidence, largely by virtue of studying the railroads. It would be less than simple justice not to add that the good citizens of the Middle West had the foresight to lay out their section lines with faithful attention to magnetic north. And when, following the valley of the Washita River, a few miles off a straight-line course from Wichita to Fort Worth, I discovered it not only was easier but carried me over a string of airports as well, my re-education in navigation was well-nigh complete.

At Fort Worth I sat down and figured out what my peregrinations had cost me in time and money. It was important for me to know because my trip was only half over. I was scheduled to pick up another airplane, one of the new 85 horsepower Luscombe Silvaires, and fly it back east. If my system of navigation was too costly, for all the peace of mind that it brought me, it would be better to let someone else do the ferry job.

Going the long way 'round probably had cost me an extra day. If I had flown a straight course, I could have squeezed that extra mile out of the available daylight. I had flown something in excess of 200 miles more than I would have by cutting down across the serried lands of the South. Count-

(Continued on page 51)

Flying

The new Silvaire features more power, an all-metal wing, comfortable cockpit fittings and additional improvements. Here's a report on performance and utility, written after a cross-country flight in Luscombe's deluxe version of its well-known personal plane.

A CHILL 30-mile wind boosted the new Luscombe off the muddy factory strip and started us south with a lusty kick in the pants when we banked down-wind at 800 feet.

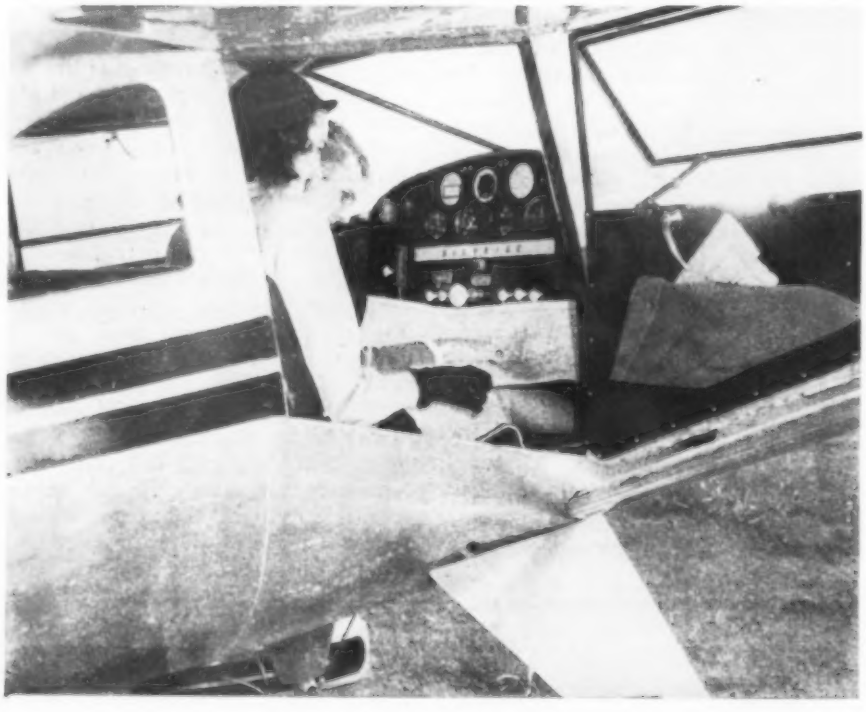
Our destination on this cross-country test trip was Bandera, deep in the heart of the dude ranch country, forty miles west of San Antonio, and three hundred miles from Dallas. This deluxe version of the Silvaire, powered by a Continental 85, should normally do the distance in two hours and forty minutes. Helped by a booming tail wind, the trip should require a little over two hours.

Off at 2:30 in the afternoon, we began a 90-mph. climb to cover distance while getting upstairs. Our late departure meant we would have to hurry to reach Bandera before dark. Although the Silvaire has navigation and twin landing lights, the rough hill country west of San Antonio would be far from ideal for single-engine night flight.

115 True Air Speed

A turn of forward tab held the nose just below the horizon in cruise attitude and a slight throttle adjustment set the rpm. at 2,350. Air speed settled to 110 indicated at 4,000 feet and six degrees Centigrade, giving the Silvaire a true air speed of 115 mph. Now, for the first time since the hurried check-out and departure, we looked the cockpit over to see how the "deluxe" version differs from the well-known 65-hp. Luscombe.

Although the addition of an 85-hp. engine and an all-metal wing with twin tanks are the only real structural changes, it is in finishing and comfort that the new model differs most from the old Silvaire. The instrument panel, lower and more forward than in the 65, is done in maroon



Close-up of Luscombe's new cabin (lower, left) shows how single wing strut, in addition to reducing drag, also makes entrance easier. Instruments are conveniently arranged and panel is attractively finished in maroon. Rear window panels greatly improve visibility.

g the DeLuxe Luscombe

By JOE JAMES

with attractive trim and has a Cadillac look when compared to the barren panel in the 65-hp. Silvaire. Upholstery and seat fabrics are in matching shades. Careful finishing eliminates much of the usual cockpit noise and draft. Until now the Funk has been the best sound-proofed plane under 100-hp. The new Luscombe will match it.

We were over Austin, state capital and home of the University of Texas, at 3:56. That meant we had covered 186 miles in 86 minutes for an average ground speed of 130 mph. Our compass heading of 190, which held us on a magnetic course of 189 degrees, and a 115 mph. true air speed added to give us a 16 mph. wind from 365 degrees.

Ten miles north of San Antonio we turned due west. Visibility was good and just beyond a barrier of rugged hills loomed the blue-gray shape of Medina Lake. This lake lies some 20 miles south of Bandera and is fed by the same river that meanders past the dude city. We merely had to fly north up the river to find Bandera.

With the rolling hills behind us, we shoved over to pick up 120 mph. and chopped enough power to keep the rpm. below 2,350. The valley floor lies a thousand feet above sea level and we stayed at 2,000 to have plenty of leeway in case of trouble.

Following the river as it cut its way through thick deer country and past trim ranch houses, we were over Bandera Airpark before we saw it. The airfield makes elaborate use of natural trees and growth of chapparal and mesquite to preserve the rustic effect —nice for atmosphere but camouflage to the passing airman.

We headed down wind at 100 mph., turned cross wind at 90, and rolled out on straight-away with a touch of power and 80 mph. The wind sock promised gusts up to 20 mph. so we crossed the fence at 70 mph., let the Silvaire fly on, and held it there with forward pressure. The tail dropped as soon as power was cut and we turned at the intersection.

Dude Airpark DeLuxe

The private flier who drops in at Bandera Airpark is in for a surprise. After flying over forty miles of rolling terrain and desolate ranch country, one would never expect to find this airpark with the most modern facilities in the Southwest—perhaps in the nation. Hangars are neat and solidly built—even the T-hangar unit is of creative stone. The distinctive office is glassed on two sides and made of attractive stone with terrace to match.

A flagstone walk leads to a pilot's lounge which looks exactly like somethink you'd expect Sam Goldwyn to build as a set for an air age movie. The building is quonset-shaped with massive columns of polished oak and many-paneled glare-proof windows. Sliding glass panels open onto the lounge proper where one finds a huge wood-burning fireplace, a finely polished dance floor, and furnishings as striking as the building. A snack bar adjoins the lounge and here Louis Koll, former chef of a leading Texas hotel, served us a steak that topped off a perfect day.

Hop-Skip to Fishing

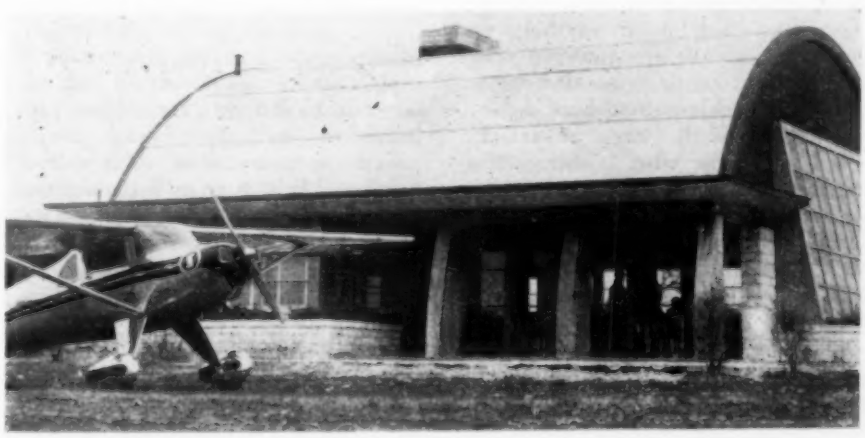
We spent the night at the Flying L's two-story ranch house which houses guests until cottages on the airport are finished. Dawn found us at the airport and, with airpark manager Johnny Fielder leading the way in a Piper Cub, we took off and hopped 10 miles up the valley to the Flying L's fishing and hunting lease. Here we found three lakes flanked by an all-weather strip constructed to accommodate twin-engine executive transports which bring vacationing sportsmen to Bandera for a fling at hunting, fishing, horseback riding and plain resting.

We taxied almost to the water's edge, loaded our fishing tackle into one of Grumman's all-metal canoes and shoved off for bass. Perhaps the bass were cold, and then again perhaps we were more interested in watching ducks, for Friend Tom made the morning's only catch. It was soon noon and time to get started. Winds would be on our nose during the return trip—winds that had boosted us down the day before would now cut our speed. We hurriedly got the Silvaire in the air, made a quick stop at Bandera to pay a $2 hangar fee, and were off at 1:36 for San Antonio and Dallas.

Since we had no radio, we guessed and picked three thousand feet for best winds. By the time we reached San Antonio we had the wind computed at 40 mph. from 070 degrees. We dropped down to two thousand and began making better time and, by the time we reached Waco, our ground speed had picked up to 90 mph. We landed at Rich Field near the very edge of the city, and in fifteen minutes our plane was gassed, our bill paid, and the engine was turning over. With dusk less than an hour away, the excellent service was really welcome.

We were over the Luscombe factory near Garland, Texas, at 5:15. The last rays of sunlight, striking rows of parked aircraft, sent long shadows across the turf field as we set the Luscombe down. Air time for the return trip totaled three hours and twenty-four minutes—an average ground speed of 88 mph. Average ground

(Continued on page 48)



JOURNEY'S END: Our deluxe Luscombe is shown here parked in front of the pilot's lounge at Bandera Airpark, ultra-modern private field some forty miles west of San Antonio, Texas. Attractively designed lounge has huge sliding panels, glare-proof windows, snack bar and over-size fireplace.

Helpful Hints for That First Flight Lesson

By A. H. KNOUFF

Never try to show your instructor how much you know. You will get along faster by calling his attention to what you don't know and save yourself embarrassment later on.

Getting off to a flying start may be easier if you follow these simple tips from an old-timer.

PULLING back on the stick makes an airplane go up. Pulling back on the stick also makes the airplane go down.

Both of these apparently contradictory statements are true. The catch is that neither tells the whole truth. It is almost impossible to make any short, simple statement that will tell the whole truth about anything an airplane does. Before you get your private pilot rating, your instructor will tell you that pulling back on the stick increases the angle of attack. When you know what it means, this statement explains the two with which we started out. But if you are not already on familiar terms with an airplane, you are likely to ask:

"That's wonderful, but what are you talking about?"

Like any other teacher, your flight instructor has to start by telling you part of the truth—using words you understand—and then doling out additional facts when you need them and can understand them. A good instructor knows many ways of getting these facts across. He uses the one he has found effective with most students. But if you don't get the idea at first, he may try one of the other ways of explaining it. So if what I tell you seems to be different from what your instructor says, don't jump to the conclusion that one of us is full of baloney. Talk it over with him and you will probably learn that our statements which conflict are really parts of a puzzle which will make sense when you know how to put them together.

Admit Your Lack of Knowledge

When you get into the airplane for your first lesson, your instructor will ask whether you understand the controls. Regardless of how much you have read on the subject or how much you may have handled the controls while riding as a passenger, it will do you no harm to hear his explanation.

Never try to show your instructor how much you know. You will get along faster by calling his attention to what you *don't* know. He will find it out anyway, and can teach you more quickly and with less embarrassment to you if you admit your lack of knowledge in the first place. Many pilots have come to a sad end by trying to show how good they thought they were. Have you ever heard of one cracking up because he asked how far he should move the stick to get the tail up on the take-off?

If you ask your instructor that question, he may answer by asking you, "How far do you turn the wheel of an automobile to go around a curve?" The answer depends on how sharp the curve is—and whether the automobile is moving. In the case of the airplane, it also depends on how fast it is moving. In fact, your instructor will probably tell you to forget about how *far* or what direction you move the controls, but to learn how much *pressure* is necessary. Simply apply enough pressure to make the

airplane do what you want it to do.

The rudder is the easiest control to explain. It works like the rudder on a boat. Pushing on the left rudder pedal moves the nose of the airplane to the left. Pushing on the right pedal moves the nose to the right. The harder you push, the quicker the nose will move.

The elevator is like a rudder laid on its side, and is operated by the forward and back motion of the stick. When you push the stick forward, the nose moves down. Pulling back on the stick moves the nose up.

The ailerons are those movable sections near the tips of the wings. You may have noticed that when one moves up, the one on the other wing moves down. Air striking the underside of the drooping aileron will tend to push it up, taking the wing with it, while the raised aileron on the other wing will be pushed down by the air striking the top. When you push the stick to the right, the airplane tips to the right. This tipping is called *bank* or *roll*.

The stick, or control wheel, operates two sets of controls, the elevator and ailerons, which keep the ship level, or produce fore-and-aft or side-to-side tilting movements.

Remember that each control produces *movement*—or change of the position of the airplane—and when you have the plane in the position you want it, you must do something to stop that movement. Usually all you have to do is quit pushing. That is what the instructor means when he tells you to neutralize the controls. He does not mean to hold the stick in the center of the cockpit or to hold the rudder pedals even with each other.

That First Lesson

Your instructor will probably make the first take-off, although some instructors let their students hold the controls at once. It will pay you to watch the nose of the ship and the movement of the controls even though you are not handling them.

When he has climbed to a comfortable altitude, your instructor will tell you to put your feet on the rudder pedals and fly straight ahead. Pick out some outstanding landmark, such as a church steeple, water tower or hilltop, and fly toward it. If your seat is in the center of the airplane, you can sight directly over the nose, keeping it in line with your landmark. However, if you are in a side-by-side ship, the center of the nose will not be directly in front of you. Therefore, you must use some reference point on the nose-cowling, or the engine, which is straight ahead of you.

This looks easy, but you will find that you have to use the rudder from time to time—just as you have to move the steering wheel occasionally to keep an automobile straight on the road. The less you push the pedals, the easier it will be. As soon as the nose begins to swing back toward your landmark, ease up on the pedal you have pushed. The nose may continue to swing due to momentum even after you have quit pushing the pedal. So don't wait until the nose is pointed at the landmark to neutralize the pressure. If you wait too long, it will swing past the mark and you will have to do it all over again in reverse.

Straight and Level

Next your instructor will tell you to take hold of the stick. In learning to keep the ship level, remember that, in flat country, if you fly toward the horizon, you will be flying level. Notice the position of the nose of the airplane relative to the horizon when your instructor is flying. Fix this position in your mind. If the nose drops below this position, press gently backward on the stick, and begin returning it to neutral as soon as the nose starts to rise.

While you are concentrating on the right-and-left and up-and-down movement of the nose, you may unconsciously push the stick to one side. Glance at your wings from time to time to make sure that both wing tips are the same distance from the horizon. If one wing is low, relax your hold on the stick a little. It may come up of its own accord. If it stays down, press the stick toward the high wing. Relax as soon as the low wing starts back toward the horizon.

Keeping the wings level may seem difficult because nothing in your experience is like it. Soon it will become the easiest of the controls because the proper distance between the wings and the horizon is always the same in level flight, while the nose's proper relation to the horizon will vary according to the load.

At first you will have to concentrate on each of these things one at a time, but with practice they will "come natural". You can speed up this naturalness by the simple device of rotating your head. Turn your head as far to the left as you can and look behind you. Swing it forward, noting the position of the left wing. Sweep your eyes across the nose and the instruments, applying pressure to the rudder or elevator (if necessary), but keeping your head moving. Compare the position of the right wing with your mental image of the left one, and continue to turn your head as far as you can to the right. This may sound silly, and you may feel foolish when you do it at first, but it will definitely help your progress in learning to fly. It may be the most valuable habit you can form.

Let the Airplane Fly Alone

When you have begun to co-ordinate the operation of the controls fairly well, your instructor will point out a straight highway, railroad, fence or telephone line and tell you to follow it. It will be easier if you do not fly directly above it, but far enough to one side so that you can see the line without craning your neck. Keeping the same distance from the fence, or other line, will make your flight path just as straight as flying above it.

If the wind is blowing parallel with the line, it will be easy; but if it is blowing across your path, you will learn something new. Instead of keeping the nose pointed parallel with the line, you must point it into the wind enough so that the pull of the engine overcomes the sideways force of the wind. This force is called *drift*. Heading into the wind to counteract it is called *crabbing*.

Drift is not caused by pressure of the wind on the side of the airplane, but by the fact that the whole airplane is supported solely by the air mass and therefore must move along with it. Since the air is acting on the whole airplane, it has no tendency to turn. Therefore, you do not need to hold rudder to keep the proper heading. If you find yourself holding rudder to fly parallel to a straight line, look at your wing tips. You are probably overcoming drift by holding a wing down and slipping toward the wind. When you do this, the nose tends to swing toward the low side and you are holding rudder to keep it straight with your line.

The airplane does not fly efficiently this way. Level up your wings and turn the nose into the wind until your distance from that road, or other reference line, remains constant without pressure on any of the controls.

The main thing you should learn on your first lesson is that the airplane will do a pretty good job of flying if you let it alone. Hold the controls firmly enough to feel them, but lightly enough that you do not push or pull them unconsciously. The reason for the latter is not that you might do anything dangerous, but simply to keep the airplane in the position you want it. Before you use any control, take time to think just what you want to do with it and try to judge how much pressure you need. Don't stare at the nose or concentrate on any one thing too long. Relax and look around.

The basic rule of smooth, safe flying is: When in doubt, do nothing.

★ ★ ★

Basic Instruments And Their Function

II—Air Speed Indicator

An expert analyzes basic flight instruments, one at a time, and discusses their function and proper use in simple terms.

By BERNARD I. DIAMOND
School Administrator, Eclipse-Pioneer Division
Bendix Aviation Corporation

MANY types of aircraft speed indicators have been developed and tried, but the universally accepted instrument is the pitot-static type air speed indicator. This unit consists of an indicator, connecting lines and a special pressure head.

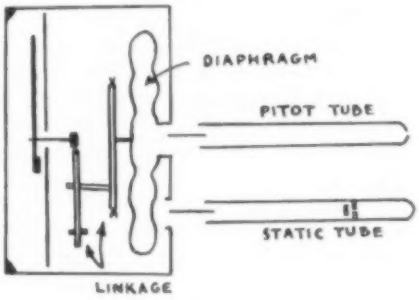
The air speed indicator (Fig. 1) may be classified as a flight instrument and serves the following purposes in present-day aircraft: (a) Indicates the rate of speed that the aircraft is traveling through the air; (b) aids in estimating the actual ground speed of the aircraft; (c) aids in determining the best throttle settings for the most efficient flying speed; (d) aids in determining the best climbing and gliding angles; (e) aids in determining whether the speed attained in a dive is within the limits of safety for the structure of the aircraft; (f) indicates when the aircraft has attained flying speed in the take-off, and when stalling speed is being approached in landing.

The mechanism of the indicator consists of a sensitive corrugated capsule or diaphragm, a rocking shaft, sector and pinion gears and a hairspring. The mechanism is housed in a case which is maintained in an air-tight condition, except for the outlet to the static line. The inside of the diaphragm has an outlet for the pitot line.

The pressure head is known as the pitot-static head and is exposed to the undisturbed air flow around the airplane.

The pitot-static head or tube takes two samples of air, and by means of connecting lines these air samples are conducted to the indicator (Fig. 2). The pitot-static head is divided into two separate sections. The pitot side conducts air at a positive pressure to the inside of the diaphragm. The static side serves as a breather for the space around the diaphragm. Thus, the two pressures, pitot and static are allowed to act on the indicator diaphragm. The resulting pressure difference is taken as a measure of the speed of the airplane relative to the surrounding air. The expansion of the diaphragm, which takes place with positive pressure to the diaphragm, is stepped up by the multiplying mechanism so that considerable pointer movement results from small amounts of diaphragm movement.

Connecting lines running between the indicator and pitot base are usually of 3/16" or ¼" outside-diameter tubing. The inside of these lines must be unobstructed, free from foreign matter and completely air-tight except for the pitot and static openings. A drain plug is often employed at a low point in the lines to facilitate the removal of any water that may enter the lines. This drain must always be air-tight.



Figs. 1 and 2. A typical lightplane air speed indicator is shown at top while the diagram shows how two samples of air are carried to the indicator through connecting lines. The pitot conducts impact air pressure to the diaphragm while the static line conducts outside air pressure. The resulting pressure difference is taken as a measure of the speed of the airplane relative to the surrounding air.

There are many types of pitot-static heads available (Fig. 3). However, in the basic requirements, they all stand on common ground. Basic requirements are that two separate air chambers or outlets must be available. One of these, the pitot outlet, consists of an opening facing in the direction of motion of the aircraft. The static outlet consists of a series of small slits placed along the side of the static chamber. Air flow acting on the pitot opening causes a pressure build-up to occur, commonly termed impact pressure. Air flowing past the static openings merely permits local existing atmospheric pressure to be present in the static line.

In air transport or military operations, an electrically heated pitot head is required. The electrically-heated tube helps in the prevention of ice formation. Ice forming on the pitot head may cause erroneous indications or complete failure by changing the effective shape of the tube or by completely closing off the opening.

On small airplanes, insufficient consideration is often given to the location of the pitot-static head. This may result in an erroneous pressure build-up on the pitot side of pitot-static head. To compensate for this shortcoming, one of several things may be done, although these procedures are not recommended. One "cure" consists of placing a small ring over the static line just forward of the static line vent holes. This produces turbulence and a reduction in pressure on the static line vent holes. Another popular "cure" is brought about by bending the static line out of alignment. This causes air to flow through the static vent holes and thus creates a reduction in pressure. In either of the above cases, the reduced pressure on the static line is intended to make up for the lack of pitot pressure. In

any case where a non-standard static line is employed, instruments other than the air speed indicator should not be connected to the line but should have a separate line.

The correct installation of the pitot-static head requires careful consideration of the following points:

(1) It must be located in undisturbed air or in such a location that turbulence is at a minimum. This means out of the slipstream, away from struts, and not too close to wing or fuselage surfaces.

(2) The pitot-static head must be parallel to the longitudinal axis of the airplane.

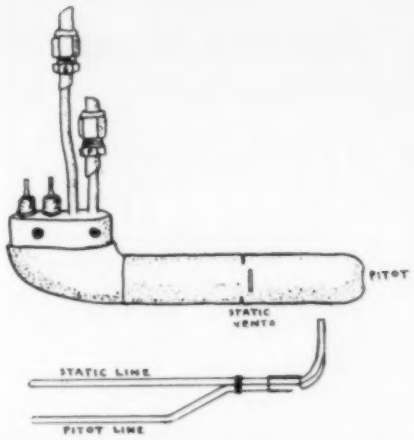
(3) The pitot-static head should be installed in such a manner that a "U" exists in the line immediately adjoining the pitot head proper. The purpose of the "U" is to prevent excess moisture from entering the lines. If the pitot-static lines run straight up from the pitot head, the "U" is not necessary (Fig. 4).

In event of any major change in the original location of the pitot-static head, or in the case of a new airplane, the completed air speed installation should be test flown and a calibration established for any errors that may exist due to faulty pitot-head location.

In considering the interpretation and use of the air speed indicator so far as the pilot is concerned, the unit is a navigational instrument. It tells the pilot the speed of the aircraft with respect to the surrounding air. This does not necessarily mean that the reading of the indicator can be interpreted as the aircraft's actual rate of travel with respect to the ground. In fact, in actual practice, the reading of the air speed indicator is very seldom a dependable indication of ground speed.

The accuracy of air speed indication depends on the density of the air remaining at a constant value. Actually air density is exceedingly variable.

The atmosphere is composed of a mixture of several gases, nitrogen and oxygen being the main constituents. Approximately 20 per cent of the atmosphere is oxygen. The atmosphere is subject to the fundamental laws of physics which apply to gases. One of the characteristics of any gas is its compressibility, which gives a rather unusual effect in the atmosphere. Atmosphere extends upward to a height of anywhere from 150 to 250 miles. A column of air 1 square foot in area and 150 miles high will have considerable weight even though air is fairly light. The weight of all this upper air bears down on the air at the bottom of the column, increasing the density of the air at the bottom to a maximum value. The air at the bottom is compressed (Fig. 5).



Figs. 3 and 4. Electrically heated pitot tubes (top) are helpful in preventing ice formations in the pitot lines and resultant erratic air speed indications or complete failure. Although electrically-heated units are a "must" for instrument flight, the conventional pitot (lower diagram) is adequate for normal lightplane operations.

The air at the top of the column has a minimum density value. The entire column then has a gradual change in its density value, maximum at the bottom (sea level), and minimum at the top.

Density is different from weight. It is different from pressure. Density is defined as the weight per unit volume of a substance.

$$\text{Density} = \frac{W}{V}$$

Under standard conditions at sea-level, the density of the air is 0.076 lbs. per cubic foot. This means that at sea level a volume of air in a space 5 ft. x 5 ft. x 4 ft. weighs about 7.5 lbs. This same volume of air at 10,000 feet would weigh only 5.5 lbs.

Unfortunately, the density of the air is not only different at different levels, it also varies at any given level. The density of the air at sea level is not always 0.076 lbs. per cu. ft. Some days it may be higher or lower than standard because density is directly affected by changes in temperature and pressure.

The air speed indicator is built and designed to indicate correctly when the density of the air is 0.076 lbs. per cu. ft. If density differs from this value, we will have an error in indication. The air speed reading or indicated air speed will be different from the true air speed. For example, if we have a local high pressure or low temperature area at some point near sea level, the air will be "heavier" than standard (Fig. 6). Under these conditions the impact pressure (pitot pressure) value for any speed through the air will be higher than it should be. The air speed indicator will have a plus error. Warm air, or a low pressure area, will produce a minus error.

Inasmuch as pressure and temperature changes both occur with a change in altitude, the reading of an air speed indicator must always be corrected for altitude. The approximate correction factor for the lower elevations, 0 to 10,000 feet, is approximately 2 per cent of the air speed reading for every 1,000 feet of altitude. This correction must be added to the indicated air speed.

For example: An air speed indicator reads 150 mph. Altitude is 4,000 feet above sea level. What is the true air speed?

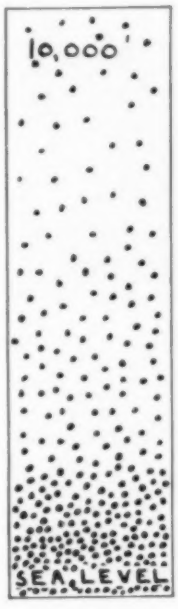
True Air Speed:

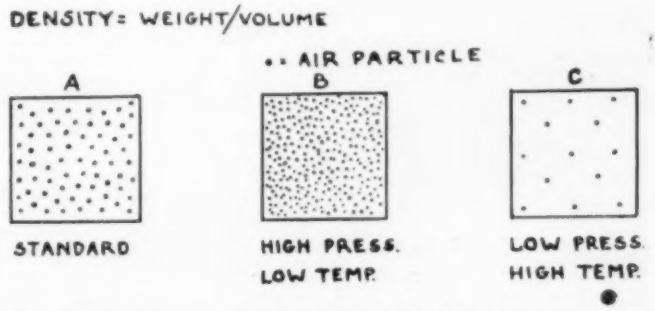
$= 150 + (150 \times .02 \times 4)$

$= 150 + 12$

$= 162$ mph.

To obtain the ground speed, we must





STANDARD AIR DENSITY = 0.0765 lbs. per cu. ft.

Fig. 5 (Left). Cross-sectional diagram of air column reveals how weight of upper air bears down on air at bottom of the column, increasing density at sea level to maximum value. Air at top of column has minimum density value since fewer air particles are found at upper elevations. Standard pressure at sea level is 29.92 inches of mercury while, at 10,000 feet, the pressure is only 20.57 inches of mercury. Fig. 6 (Above). Three squares indicate changes atmosphere undergoes at varying pressures and temperatures. (A) The atmosphere is represented under standard conditions; (B) density is increased as result of increase in pressure or decrease in temperature, and (C) density is decreased as a result of pressure decrease or a temperature increase.

know the velocity and direction of the wind.

Stalling Speeds

A well known statement which has caused much misunderstanding is "Indicated stalling speed is the same at all altitudes."

To clarify this point, we must recall that the air speed indicator is always a sensitive pressure gauge. When a given airplane stalls at an indication of 50 mph., the air speed indicator is really indicating that an impact pressure exists having a value of 1.2 inches of water. For that particular airplane 1.2 inches water impact pressure is essential to produce sufficient lift for the airplane to fly. It matters not whether the plane flies slowly through a dense medium (air at sea level) or faster through a less dense medium (air at a higher elevation). As far as the air speed indicator is concerned it will read 50 mph. (1.2″) only when the proper relationship between speed through the air and air density is obtained.

Installation

The following practices should be observed by the instrument service mechanic in making and checking a typical air speed indicator installation.

(1) Connect the static side of the pitot-static head to the "S" side of air speed indicator. Connect the pitot side of the pitot-static head to the "P" side of the air speed indicator case.

(2) Test pitot and static lines for leaks. *Disconnect all instruments from the lines before performing this operation.* Place air tight stoppers over the ends of the lines where the instruments were disconnected. "Tee" a manometer or pressure gauge into the line for indicating the amount of pressure being used. Do *not* use the air line pressure.

(3) Test the air speed indicator case for leaks. Connect a short piece of rubber tubing to the "S" connection, and then suck very, very lightly on the tube and stop it off. The amount of suction applied should displace the pointer no more than 100 mph. If there is no leak, the pointer will hold the reading. No leak should be tolerated.

Did You Know?

On a 300-mph. range air speed indicator, a pressure sufficient to cause the instrument to read 100 mph. causes the diaphragm to expand approximately 0.015 inches.

At 1 mph. the impact pressure is 0.005 inches water.

The thickness of the material used in air speed diaphragms ranges between 0.003 and 0.007 inches.

One mile an hour is equal to 0.8684 knots.

One knot is equal to 1.1516 mph.

One mile an hour is equal to 1.609 kilometers per hour.

Impact pressure varies as the square of the change of speed. For example, impact pressure at 100 mph. is equal to 5 inches of water impact pressure; at 400 mph. it is equal to 80 inches.

FIRST FLOAT-EQUIPPED HELICOPTER TO BE GRANTED AN NC LICENSE by the CAA was the Bell model shown above. Several projects are reported planning to use this float version and among them is the Lundberg-Ryan exploration group, an organization which made extensive use of helicopters last summer in surveying potential mining properties in Canada. Their plans now call for moving into the back bush country where few dry spots are available. Here countless lakes and waterways will be ideal for float-equipped helicopters.

(4) Pitot and static lines should be blown out occasionally. Use moderate pressures and be sure that all instruments are disconnected from a line being blown out.

(5) All lines should be so installed that they do not rub against other lines or ship structures. Lines should be either spread apart by adequate spacer blocks or properly taped together, one line to another.

(6) If drain plugs are removed for any reason, be certain that the plug is reinstalled in such a manner that no leaks will be present.

(7) If other instruments are teed into the air speed static line be certain that they are properly connected so that no leaks will be present. If a second static-line is used for the altimeter and the rate of climb indicator, be sure that the air speed static line is connected to the air speed indicator and the auxiliary static line to the other instruments.

(8) Pitot-static heads must be very nearly parallel to the longitudinal axis of the airplane. Do not hang objects on the pitot head. In the case of aircraft being stored out of doors in heavy rain, some protection should be given to prevent water from entering the pitot and static lines. A small canvas hood is the best solution to the problem. Be sure to remove the hood before releasing the ship for flight.

(9) Air speed indicators are required by the CAA to carry markers at given speed values. These speed values vary from one ship to another. A red line is used to indicate maximum dive. A green line for cruise and a yellow line for maximum speed, flaps down. Neat lines, 1/16″ wide by ¼″ long should be painted on the cover glass and maintained in a legible condition.

Field Reports

For aid in trouble-shooting, typical field reports are listed here with possible causes for defective air speed operation:

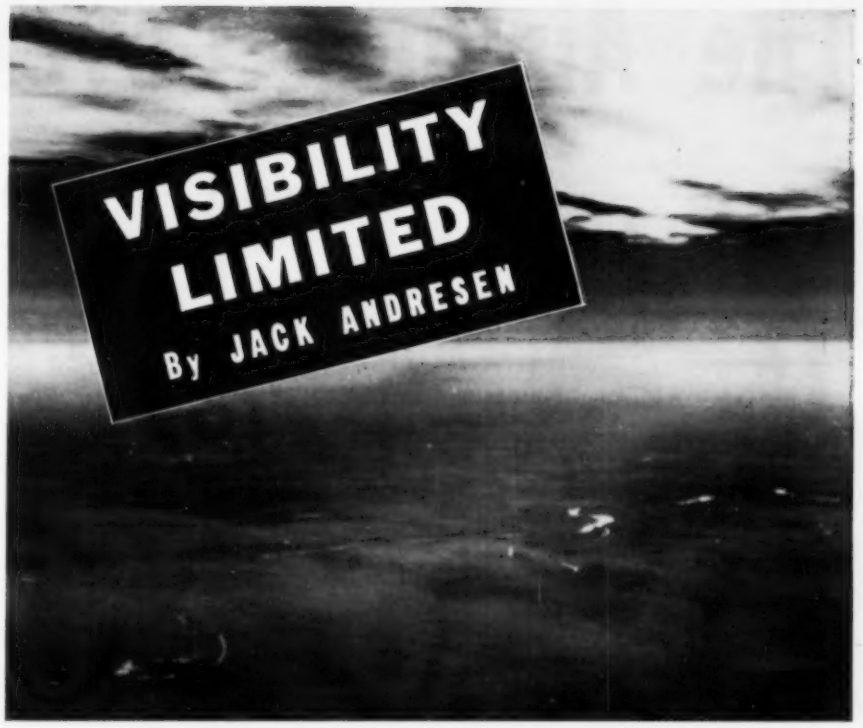
Inoperative — Instrument not connected to lines; blocked lines or broken lines; excess water in lines; iced-up pitot head; pointer touching glass or dial or loose on staff.

Pointer loose or off zero excessively— Effect of heavy vibration; someone blew in line; water in the lines.

Reading in reverse — Instrument hooked up in reverse; water in line.

Reading high—Leaky case or static line; faulty location or arrangement of pitot-static head; water in line; instrument off calibration.

Reading low—Leaky pitot line; off calibration; faulty alignment of pitot head; water in lines; obstruction in static line. ★ ★ ★



Bright sunshine and lots of ceiling don't always mean safe flying weather as this experienced pilot learned in one not-so-easy lesson.

JUST the kind of a day I had hoped for—sunny, mild and calm. The plan was to take the twin Cessna from Roosevelt Field on Long Island over to Caldwell-Wright Airport, New Jersey, about thirty-five miles west. For me, the event was a multi-engine check flight.

After a very thorough cockpit check, I taxied to the runway designated by the wind tee, the sock being limp. Mags, props, full power, another quick cockpit check and we buzzed down the runway.

The airport of destination was not a familiar one but I knew several check points well. Consequently, I established my heading from the first point. I looked at the compass and proceeded with a slow climb in order to be at about 3,500 feet over LaGuardia Field and Manhattan. I was beginning to glow with that smug feeling a pilot gets when he thinks everything is under control, that he is the absolute master of his ship and probably any other one he might choose to fly.

I had never tried to crank down the landing gear with that emergency hand crank—the one which is supposed to be used if the electric system fails. It seemed like a good thing to try before the test, so I started cranking just to see if it worked. After over a hundred turns of that crank I suddenly noticed that my visibility was greatly decreased. Being strictly a contact pilot, I was distressed to find that only a small circle of ground directly below me was visible. While giving my attention to the crank I had gradually entered a region of haze and smoke of the type which often lurks over metropolitan areas.

Caught Unawares

Overhead the sun was still bright, but I was seized by doubts as to the extent of my horizontal visibility. Ahead and around everything looked an even gray, blending into the blue sky above. Below a fuzzy circle of ground melted into the gray. Was my visibility two miles or two hundred feet? There seemed to be no way of judging.

I pulled up the gear electrically and started to climb rapidly, hoping to get above the stuff as I neared LaGuardia Field. I was in a zone of heavy air traffic, and ignorance of how far I could see was not exactly bliss. At 5,500 feet I was west of the Hudson River but still not on top. The ground area was even smaller, but in this patch of New Jersey earth I recognized a landmark near Teterboro Airport. I had had enough of this. I cut the power, lowered the gear, and spiralled down fast.

As I touched down at Teterboro a Stinson was making a flare-out on the only runway on a reciprocal heading. He saw me, pulled up sharply and disappeared behind me. There was still no wind, but the tee was set in my direction and was normally camouflaged. I might as well admit I hadn't seen it. The Stinson's pilot was persistent though; he circled, and made his landing as planned.

In the flight office the visibility was given as two miles with no ceiling. At Caldwell-Wright they quoted three miles. It was only a six-minute run but I figured my variation and deviation carefully, circled to 1,000 feet back over the field, clicked the stop watch and did plenty of looking around. About five and one-half minutes out a bright, aluminum-painted hangar roof gleamed up at me through the gray veil. It certainly prevented me from running right over a field with mile-long, paved runways. I relaxed for a brief moment, then contacted the tower for landing instructions.

On the ground I casually queried the check pilot as to whether he considered the weather ok. It was still three or four miles on the ground. He muttered something about a little haze and suggested we get going. During the check-ride I simply assumed he knew where we were; he would see any traffic before I would. He seemed little concerned about either item and there were no incidents, so the matter of which one of us was watching was never actually determined.

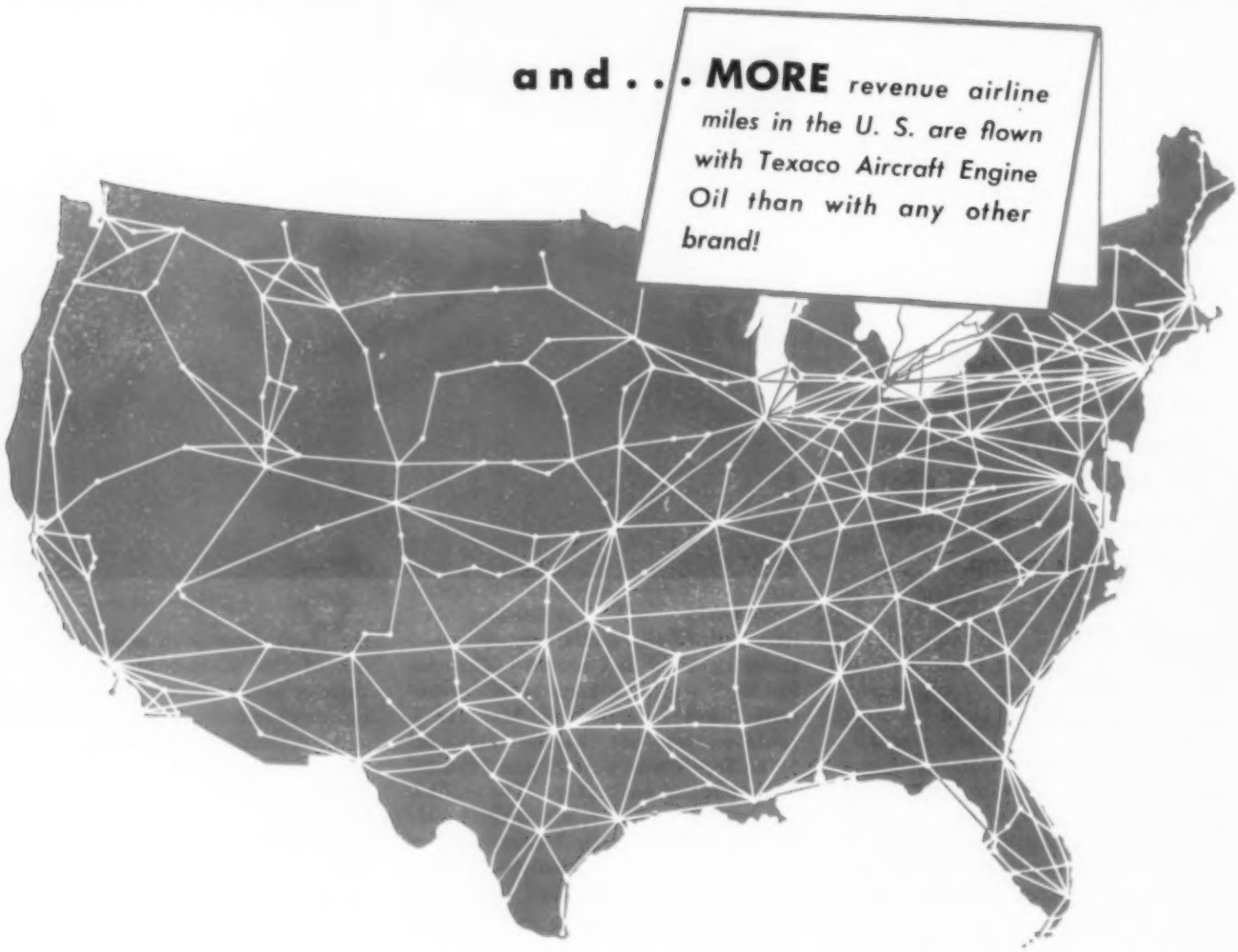
Legal But Risky

After the ride he lectured at length about my weak points. Then, with numerous admonitions, he filled out the flight-check card with passable grades. By this time the visibility had dropped to about one and one-half miles. He assured me it would be clear on Long Island. But I was pessimistic, so he called Roosevelt Field and got a report of six to eight miles and improving. Thoughts of getting lost, midair collision, dead engines, and parachuting into the Hudson River ran through my head. He assured me all I need do was to circle the field up to three or four thousand feet to get over the top, hold a 120° magnetic heading and before I knew it I'd be in the clear. After all, it was all legal and above CAA minimums.

He shook my hand ominously, gently nudged me into the plane and stood there grinning with his thumbs in the air. I taxied out, ran the engines for an unusually long time, checked and double-checked everything and leaned on the knobs.

(Continued on page 48)

The Airlines Cover America



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Modern AIRPORTS

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Located on main highway between Kansas City and St. Louis, Columbia, Missouri's 205-acre municipal airport has more activity than fields several times its size. Most traffic comes from Columbia Flying Service (nearest hangar) and Stephens College Flying School (last hangar).

—Photo by George Alton.

COURAGE FOR SERVICE

Richmond Flying Service, located on Staten Island, N. Y., is an outstanding example of what initiative, ideas and capital can do in the airport business. Taking over what had been little more than a landing strip, Richard H. Gans (driving jeep) made real airport service a paying proposition.

By JOHN H. FREDERICK

THERE has lately been far too much talk of government aid to airport construction, of national airport plans whereby Uncle Sam will put up a good part of the cash and then naturally have quite a say in how an airport is to be managed. There hasn't been nearly enough talk of private initiative, of private capital going into the airport business.

Perhaps this is because of the prevailing idea that an airport can't be expected to earn its keep and that, therefore, it has to be subsidized, which is probably true in many instances. But if one looks around he will see there are places, particularly in large metropolitan areas, where private capital can be invested in an airport, and if it is properly managed —if ideas are allowed to form and grow into action—money will be made. What is being done right now at one place is a fine example.

Recently the old Donovan-Hughes airport on Staten Island, N. Y., practically nothing more than a landing strip, was taken over by Richard H. Gans, a former Major in the Transpor-

AIRPORT SERVICE AS I SEE IT

By Richard H. Gans
Owner, Richmond Flying Service

DURING the war there was talk on all sides about the big boom that would take place in private plane ownership and travel. That it isn't materializing to the expected extent is, in my opinion, the fault of the owners and operators of small flying fields.

What's the use of buying and operating a small plane, is the feeling, if you have few places to go and nobody gives two hoots for you or your craft when you do go somewhere? The big airports don't want the small plane and accessible small fields don't hang out welcome signs. Too many private field owners are content to keep going along as they have been for years . . . peddling Sunday rides, giving lessons and pumping gas.

Service is the big "plus" in any business endeavor and personal service is the key to good will and repeat business. The big gripe with the small plane operator is the lack of service and attention at most of the small fields. Usually you have to look about for an attendant to tell you where to park your ship. Once having put it away, you are completely on your own and nobody seems to care whether or how you get into town or worry about what they might be able to do for you.

This is comparable to a situation where one would take the family car out and not be able to find a service station. Once having come upon an isolated pump, he runs his car up to it and blows his horn and yells for some one to come out. No one cleans his windshield . . . no one asks whether they can be of additional service and his questions are answered gruffly and inattentively.

In small plane operation, unfortunately, this seems to be the rule and rarely an exception. I cannot understand why more cognizance has not been taken of this situation by the plane manufacturers. Gasoline companies are doing a little to help dress up airports and can usually be relied upon to perform service and give assistance. However, it is the airport owner himself who should take up the cudgels.

It's a small thing to be nice . . . and the customer never forgets. People return to do business only with those who have given them satisfactory service . . . and if those of us in the airport business want to make a go of it, we must be ready and come through when called upon. ★ ★ ★

tation Corps, and a young man with some mighty good ideas and apparently some cash. What is being done there promises to be one of the outstanding examples of what private initiative and capital can accomplish with an airport.

Free Transportation

Gans' organization, the Richmond Flying Service, believes in service and a different service from that offered private fliers at most places. Anyone planning to stop here and needing hotel or theatre reservations can have them made for him without charge. When he lands he will be met by an attractive young lady who will see that he is transported to the nearest public transportation—the Manhattan ferry—in a good looking station wagon without charge. These services alone will make private fliers plan to stop at any airport and they don't cost much to supply. There are the other traditional airport services of hangar rentals and maintenance but Gans doesn't stop here.

Within the next few months the Richmond Flying Service will operate a seaplane from the airport to Manhattan, a five minute flight, for the benefit of customers. They will also maintain office facilities in midtown Manhattan for the benefit of flying business men who may use the airport. In addition a bar at the airport made from the fuselage of a B-29 will be in operation and to cap things off a photographer will take pictures of arriving fliers and send glossy prints back to their home town newspapers.

All of this is very smart and Gans has no patent on the ideas. They are useable by any airport manager anywhere that they might fit in. All such stunts serve to increase the revenue coming from gas and oil sales and hangar rentals. The Richmond Flying Service will also provide the traditional fixed-base operator type of charter service and flying lessons. It may also obtain dealerships for several models.

This first venture is just a start for Gans. Eventually he hopes to operate a chain of some fifteen or more private flier airports throughout the country, identical even down to potted plants about the buildings and a color scheme of orange and green. He sees the need for such an organization to serve expanding cross-country flying.

An advertising agency has been employed and is currently putting on quite a razzle-dazzle promotion campaign in the New York area over the radio. A contest is being conducted to obtain a theme song for the program written by some amateur songwriter and flying clubs are being promoted among schools, organizations, professional groups and even the police departments in the metropolitan area.

The moral of all this is that it can be done! Courage, ideas and a landing strip are the only essentials to bring in airport profits.

★ ★ ★

Playthings for the kiddies are safely located away from the ramp and children approach airplanes only when parents accompany them.
—(Paul E. Wolfe Photo.)

WHEN the traveling salesman called at the Santa Barbara, Calif., airport he didn't expect to find children in the play pen, nor did he expect to find a play pen at all. But there it was, filled with children waiting for mama to come down from her lesson.

It all started when Murray Leonard and his partner found the young flying market of Santa Barbara couldn't come out to fly because "there isn't anyone to leave with the baby"—not when mother and father both want to fly. Here was market for flying time, new planes and rentals bogged down because of the servant shortage. The airport seemed a logical place to leave the children while the parents flew, so Leonard and his wife went shopping. They bought a play pen, some comic books, old-fashioned red riding hood stories, a couple of rattles and a ball.

Then they got on the phone and invited the flying families to come out to fly and added, "Bring the kiddies." It was an immediate success! Mother and daddy came to the field, put junior in the play pen or in a corner with his favorite comic book. There an attendant took over and the parents took off, knowing all was well with the family.

Leonard and Babb are both ex-Navy pilots who wanted to stay in aviation when the war was over. They picked Santa Barbara and, as the traveling salesman noticed, are good merchandisers. They are dealers for the three hundred odd items Pacific Airmotive Corporation handles, they invite breakfast hops, rent planes or sell them.

—TONY HAGMANN.

Harold Ela of the operator's staff helps tend the nursery when not needed on the ramp. Note complete magazine library for big brothers who wait with kiddies for parents. —(Paul E. Wolfe Photo.)

A LOOK AHEAD

As 1947 begins, we at Lear look forward to serving the aircraft owners and industry better than we ever have before. Production difficulties are clearing up. Materials seem headed toward more ample supply. And wartime developments are rapidly being turned to peacetime advances.

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You'll find these new devices at your favorite aviation dealer's. For any established aviation dealer or operator can purchase Lear equipment from the Lear distributor.

In this way, we feel, Lear can best serve the interests of the aviation industry.

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Butler, Pennsylvania

AEROSERVICE, INC.
Omaha Airport, Omaha, Nebraska

AIRCRAFT RADIO CO.
1741 Richards Rd., Mun. Air.
Kansas City 6, Missouri

AIRCRAFT SALES COMPANY
Meacham Field, Fort Worth, Texas

AIRCRAFT SALES & SERVICE, INC.
Municipal Airport, Birmingham, Alabama

AIR RADIO AND INSTRUMENT CO.
19 North First Street, Geneva, Illinois

AL-AIR RADIO
Whiteman Airpark, Pacoima, California

AL O'DONNELL
Roosevelt Field, Mineola, Long Island, New York

ANGLE RADIO CO.
Boeing Field, Seattle, Washington

ART WHITAKER
5001 N. E. Union Avenue, Portland, Oregon

ATLANTIC AIRCRAFT DISTRIBUTORS
607 Snow Building, Calvert and Lombard Streets
Baltimore 2, Maryland

BRAYTON FLYING SERVICE, INC.
Lambert—St. Louis Airport, St. Louis, Missouri

COLUMBIA AIRCRAFT SERVICES
Bloomsburg Municipal Airport
Bloomsburg, Pennsylvania

DAYTON AIRADIO, INC.
North Administration Building
Dayton Municipal Airport, Vandalia, Ohio

ELECTRONIC ENGINEERING CO.
234 W. Butt Street, Norfolk, Virginia

FLORIDA AIRMOTIVE
Orlando, Florida

LEAVENS BROS. AIR SERVICES, LTD.
Barker Airport, Toronto, Ontario, Canada

LINDSEY AIRADIO
Room 228, Administration Building
Municipal Airport, Wichita, Kansas
Oklahoma City, Oklahoma

MacDONALD BROS., AIRCRAFT, LTD.
Stevenson Field, P. O. Box 2860
Winnipeg, Manitoba, Canada

NORTHWEST AVIATION, INC.
318 Wabasha Street, St. Paul, Minnesota

PALM BEACH AERO CORP.
Lantana Airport, Lantana, Florida

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis 41, Indiana

SERVAIR, INCORPORATED
City Airport, Detroit 5, Michigan

UNITED AERO SERVICE, INC.
Delta Air Base, Charlotte, Nort. Carolina

JOHN F. WAGER, AIRCRAFT RADIO CO.
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FRANK SUNDERLAND

Advertising Manager

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Better Business for Florida Airports

By WILLIAM C. LAZARUS

Aviation Supervisor, Florida State Improvement Commission

THE Florida Airport Management Conference held at Orlando, Florida, November 25-26, was called by the State of Florida for the purpose of improving public and private airport management and services throughout the state. Many communities which have never operated airports are taking over surplus military airfields in this state or building new airports. This group has little or no knowledge of airport operations and management and had expressed the desire for such a conference.

Many of the older airports had not kept up with changing conditions brought about by World War II and the postwar expansion of aviation. A questionnaire, sent out by the Aviation Division of the State Improvement Commission asking whether such a conference would be helpful to all concerned, received an unusually high response. Airport managers were asked to indicate their most pressing problems and the agenda for the conference was based exclusively on results of this questionnaire.

The first day of the conference was divided into two sessions—one for the public airport officials and the other for the private airport owners and managers. Airport operators were not invited to the conference as the managers felt they would be better able to discuss matters among themselves without injecting operator problems.

The second day of the conference was a joint session in which both public and private airport owners discussed mutual problems.

Each group selected its own chairman and conducted its own discussions along the lines of the agenda prepared by the Aviation Division of the Improvement Commission.

Attendance at the conference was fully representative of all sections of the state. Large airports and small ones were represented. Not only did airport managers attend but mayors of cities, county commissioners, county and city attorneys and chamber of commerce officials participated in the state-wide effort to improve airport management.

The municipal session on the first day heard an explanation of the Federal Airport Act by Dewey W. Cole, CAA Airport Engineer for Florida. The "sponsor's assurance agreement" was covered in detail so that municipalities would know the terms under which the Federal funds would be made available. Cole pointed out that revision of the rules and regulations was in progress following public hearings in Washington, October 28 to November 1. The municipal officials expressed the same alarm over the strictness in terms of "assurance agreement" as was presented at the Washington hearings by the National Association of State Aviation Officials and others.

New Buildings Asked

Municipal officials concurred in the survey made earlier this year by the State Improvement Commission which recommended new administration buildings on at least 48 public airports. This undoubtedly is the greatest aviation need in the state at present. With over 307 airports and seaplane facilities in Florida, the need for new airports is confined to a few isolated cases while the majority of the surplus military airfields and other airports lack suitable administration buildings which are capable of producing the major portion of the airport revenues. The state of Florida had recommended to the Civil Aeronautics Administration that approximately 31 per cent of the funds to be made available under the Federal Airport Act be devoted to new and larger administration buildings.

Cole indicated that, in principal, this had also been his recommendation in the Florida section of the national airport plan. In this the public airport managers concurred.

Also discussed by the public airport officials was the procedure for securing surplus military installations. C. G. Swanson and S. Elmo W. Acosta, Jr., of the Jacksonville office of the War Assets Administration, outlined steps under WAA regulation No. 16 whereby municipalities may obtain interim permits and final title to surplus installations.

Led by an aggressive state commission, Florida airports are pressing CAA for new buildings and exploring new revenue sources.

Many municipal officers expressed great dissatisfaction with the procedures being followed by the War Assets Administration and other agencies including the Civil Aeronautics Administration, which set up the procedures for acquiring airports and for returning municipal airports, which were leased to the government during the war, to their original owners. Military operations ceased on many of these airports over a year ago, yet the cities which own the sites can not operate the airports without following a long, highly complicated process of interim permits, waivers of interest and other "red tape".

In an effort to assist communities in applying for surplus airports the State Improvement Commission distributed copies of a sample letter of application which cities might use in applying to the War Assets Administration.

The only resolution of the entire conference resulted from this discussion when it was pointed out that the Reconstruction Finance Corporation could act prior to municipal action to acquire sites and buildings adjacent to the airport for small businesses. The municipalities must agree to maintain such airports, which in many cases were expanded to 1,000 acres or more during the war, yet they lack the priority to acquire adjacent building areas. It was felt that these areas are vitally needed to help meet the operating expenses of the airport. Since the priority was set by Congress and the President, the resolution asking for equal priority for municipalities along with the RFC was addressed to Congress.

On the subject of "Leases and Contracts with Airlines and Fixed Base Flight Operators", Charles E. Hanst, Chief, Airport Management and Operations Section, CAA, Atlanta, Ga., and former manager of Love Field at Dallas, Texas, led the discussion.

It was generally concluded that the municipalities favored short term (1 to 2 years) leases with air carriers due to the unsettled situation as to space requirements, prospects of new administration buildings and the large number of pending applications before the Civil Aeronautics Board which

might change the volume of service at any city on short notice.

On fixed-base flight operator leases and contracts, the municipal officials expressed a desire for long term (5 to 25 years) leases with established and reputable operators so that private capital could be invested and amortized over a period of time. It was generally conceded that the municipalities should not attempt investment of large sums of public money in hangars and other facilities but rather permit reputable operators to assume the service to the public. This would seem to indicate that the majority of cities are now ready to withdraw from the offering of services directly to the public in favor of rentals and concessions from which the city would receive sufficient revenues to maintain the landing area of the airport.

State Licensing Protects Approaches

Discussion at the private airport session, which ran concurrently with the first public airports session, was devoted largely to the matter of approach zone protection. Public airports have long enjoyed approach zone protection through Florida's airport zoning laws but private airports which may equally provide service to a community lack protection from adjoining property owners who might erect buildings or obstructions on the end of runways. With 59 private airports in operation and seven more under construction, the present investment in private airports in Florida is estimated to exceed $1,500,000. Any or all of these investments could be rendered worthless by the action of adjoining property owners.

The State Improvement Commission is considering as a part of the new Florida aviation plan, now being prepared, the state licensing of airports which will also recognize the public nature of private airports so that they will enjoy the right of eminent domain over their approaches by franchise granted in the state license.

Private airport owners appeared unanimously in favor of state licensing of airports under these conditions. No other state has this type of licensing law which protects the approaches on all airports, both public and private. Maryland and several other states are closely following this new development in Florida.

Nuisance Flying Aired

Another topic discussed by private airport owners was development of better relations with city and county officials in their respective communities. Howard Showalter, owner and operator of Showalter Airpark at Winter Fark, led a discussion which centered around air safety and enforcement as a means for improving relations with local public officials.

In general, local public officials are the first to hear complaints of noisy and low flying aircraft. Some of these aircraft may be based at private airports and if the situation occurs frequently the public officials come to regard the local privately owned airports as the source of public nuisance and relations become strained.

The private airport owners expressed themselves as lacking authority over the individuals flying from their airports if the individual owns his own airplane. They pointed out that garage men are not held responsible for the traffic violations of people who store cars in their garages. However, motorists can be apprehended by local police at any point while the apprehension of air traffic violators must of necessity be done on the ground. Often the private airports are outside the city limits of the community where the violation occurred so that local police can not act and the co-operation of the airport management is necessary if the offender is to be brought to justice.

The private airport owners felt that the secret to better relations with local public officials revolved around their co-operation in enforcement of regulations. They further felt that state enforcement of CAA air traffic rules might be of assistance in this problem.

Revenue Sources Explored

The joint session for both public airport officials and private airport owners was devoted largely to the subject of potential revenue sources on airports and charges to the public for various services. Hanst led the discussion on these subjects. Dividing potential revenue sources into two principal categories — aviation and non-aviation—the following tabulation summarizes the items considered:

Aviation Sources

1. Air carrier landing fees (Scheduled and non-scheduled carriers)
2. Airline office space rentals
3. Fixed-base operator office space rentals
4. Non-scheduled carrier office space rentals
5. Hangar space rentals
6. Tie-down or parking rentals
7. Gasoline sales concessions
8. Heat, power and janitor service charges to CAA
9. Land rental to operators who would erect their own buildings

Non-Aviation Sources

1. Taxi and bus franchises
2. Restaurant and snack bar concessions
3. Soft drink-cigar stand concessions
4. Newsstand concession
5. Western Union Telegraph Concession
6. Pay station telephone concessions
7. Pay toilet concession
8. Pay locker concession
9. Scales (weighing) concession
10. Parking lot and garage concession
11. Advertising display concession
12. U-Drive-It car rental concession
13. Vending machine and amusement devices concession
14. Golf driving range (use of approach zone land)
15. Skeet shoot (use of approach zone land)
16. Local product and souvenir concession (citrus orders, etc.)
17. Farmer's market for assembly of perishable foods for air shipment
18. Pre-cooling and food storage plant for handling foods for air shipment
19. Rental of other available buildings for non-aeronautical purposes

The discussions brought out that many of the public airports in the state had succeeded in balancing their operating budgets in the past year. Miami, Tampa, Jacksonville, Orlando and Sarasota reported balanced or nearly balanced operating budgets. Other communities were experiencing losses as high as $10,000 per year in the operation of public airports. However most of these were attempting to utilize the aviation sources of revenue only and had not attempted to develop the non-aviation sources to any extent.

It became increasingly evident that the key to balancing the public airport budget was in the development of the non-aviation sources of revenue.

Private airports showed that in most cases student training was the principal revenue producer. Few of the private airport owners have kept separate books on their airport operation as distinguished from their operational business. Little or no effort has been made to develop non-aviation sources of revenue on the privately-owned airports. A few have recently installed "U-Drive-It" car rental service so that transient pilots can secure a car for local use immediately upon landing. This promises to be a profitable non-aviation source on private airports as well as on public airports.

On the matter of charges to the public, it was found that the price of aviation fuel (80 octane) in Florida varied from a low of 24c per gallon to a high of 32c. The average charge

(Continued on page 34)

Airmen's Calendar

Jan. 6-16 — Aviation of Tomorrow Exhibit, Miami.

Jan. 10-11-12 — All-American Air Maneuvers, Miami.

Jan. 13-15 — Fourth Region non-scheduled operators conference, Texas Hotel, Fort Worth.

Jan. 14 — IATA Australian Traffic conference.

Jan. 27-30 — IAS annual meeting, New York.

Feb. 1-28 — Inter-American light-plane cavalcade, Brownsville to Panama.

Feb. 1-8—New York Aviation Show, Grand Central Palace.

Feb. 8-9—Woman's Aviation Convention, San Antono, Texas.

Sky Harbor Municipal's

Revenues vs Costs

WITH revenues exceeding expenditures by $53,842.22 during the fiscal year ended June 30, 1946, Sky Harbor Municipal Airport at Phoenix, Arizona, has plans calculated to prove Airport Manager Walter P. Fulkerson's contention that a city-owned airport can pay its way without burdening taxpayers or airport users.

"It is not our intention nor is it the function of a municipal airport to see how much money can be shown in the net operating profit column and when we are able to get on a more business-like basis it will not be our purpose to pile up excess profits," Fulkerson emphasizes. "Our concern is devoted only to guarantee sufficient revenues to maintain the field and its facilities, to keep current an "in lieu of" tax fund and to provide adequate debt service. These revenues are well within sight at the present time."

Widely known because of his efficient management of Sky Harbor, Fulkerson became airport manager in August, 1944.

Non-Scheduled Aviation Favored

Sky Harbor recognizes operators and transient aircraft as principal customers. Operators are not charged operating fees but are required to purchase their gas and oil from the city. Sky Harbor has no landing fees for non-scheduled aircraft of any type and charges no tie-down fee. Last month 62 per cent of the gasoline sold at Sky Harbor was purchased by transient aircraft.

Concessions have not been developed at Sky Harbor as at some airports where revenues are efficiently cultivated. The terminal building is totally inadequate and has no concessionaires. The restaurant, operated by Sky Chefs, an airline subsidiary, pays the city 6 per cent of gross receipts, 2 per cent of the payment being in cash and 4 per cent going toward amortization of the building's cost.

"It is my contention," Fulkerson maintains, "that there are only three broad categories from which revenue may be derived—(1) landing fees, rentals and leases, (2) sale of gas and oil and (3) hangar rent. We have recently passed a $1,100,000 bond issue to participate in Federal aid and before going into this construction program all leases, rentals and landing fees will be renegotiated and put on a more business-like basis."

At present, American Airlines and TWA have 15-year agreements with the city providing landing fees of $37.50 each for the first two flights and $12.50 for each flight thereafter "as scheduled on the first day of each month." This fee is admittedly lower than in many cities and the long-term agreements are objectionable.

Hangar space charges are based on horsepower, the schedule being $18 monthly for 0 to 86 hp., $20.50 for 86 to 186 hp., $23 for 186 to 450 hp., $30 for twin-engine craft of the Cessna type and $50 for twin-engine Beechcrafts.

The airport's chief source of revenue is gasoline and oil sales, which totaled $163,001.39 for fiscal 1946.

★ ★ ★

Sky Harbor Rentals

	Budget Year Ended		
	6-30-44	6-30-45	6-30-46
Aircraft Radio Company			$ 20.00
Air Parts, Inc.			150.00
American Airlines, Inc.	$ 1,259.46	$ 1,200.00	1,100.00
Anderson Aviation Service (Office)			60.00
Anderson Aviation Service (Shop)			200.00
Anderson, Jesse	75.00	15.00	
Arizona Airways, Inc.			1,500.00
Associate Aircraft			812.50
CAA—Commercial Division	90.00	150.00	150.00
CAA—Yearly Leases	6.08	7.00	7.00
Davis, C. E.			252.00
Ground Rental	3,107.07	1,850.44	5,548.66
Hangar Storage	7,511.52	10,849.23	13,372.92
Herrington Cafe (American Airlines)	300.00	420.00	420.00
Mercury Flying Service			630.00
Kirby, S. H.			820.00
Long, Floyd E.			311.24
Mace Flying Service			450.00
Marsh & Franklin			1,400.00
Williams Flying School			150.00
Val Air Lanes			248.00
Navy Contract			2.39
Quick Aviation		90.00	
Quick Crop Dusting			200.00
Sky Chef, Inc.	5,240.43	8,180.31	8,836.36
Southwest Airways	4,650.00	4,400.00	2,830.00
Transcontinental & Western Airlines	520.00	845.00	715.00
Weather Bureau	75.00	300.00	225.75
Gasoline Companies	1.00	3.00	3.00
Total Rentals	$22,835.56	$28,309.98	$40,414.82

Sky Harbor Revenues

	Budget Year Ended		
	6-30-44	6-30-45	6-30-46
Lease Rentals	$12,216.97	$ 15,520.31	$ 21,493.24
Hangar Rentals (Other than leased space)	7,511.52	10,939.23	13,372.92
Ground Rentals	3,107.07	1,850.44	5,548.66
Gasoline and Oil Sales	67,823.72	57,682.03	163,001.39
Landing Fees	3,825.00	6,175.00	6,268.75
Refunds Gasoline Taxes		5,646.90	560.90
Miscellaneous Revenue and Receipts	80.28	4,427.70	421.54
Total Revenues	$94,564.56	$102,241.61	$210,667.40

Sky Harbor Operating Costs

	Budget Year Ended		
	6-30-44	6-30-45	6-30-46
Salaries	$31,258.31	$28,388.20	$36,685.57
Public Utility Service	4,230.99	3,183.32	3,459.36
Insurance	707.20	700.00	558.90
Airport Supplies	1,423.13	1,583.09	1,861.61
Runway Maintenance	1,766.58	3,187.03	3,637.18
Building Maintenance	108.33	823.76	2,807.56
Gasoline & Oil Purchases	54,331.21	29,444.55	107,760.63
Damage to Aircraft		757.99	44.12
Refunds		8.75	10.25
Total Operating Expenditures	$93,825.75	$68,076.69	$156,825.18
Net Operating Profit	$ 738.81	$34,164.92	$ 53,842.22

ON THE RAMP

LATEST airport equipment designs represent a careful study to help ramp employes handle today's varied traffic quickly and efficiently.

For servicing the small personal plane, Engineering Research Associates, Inc., St. Paul, Minn., has developed the Gasporter, a midget mobile fuel dispenser which goes to the aircraft wherever it is

(Continued on page 34)

Top—Gasporter fueler (left) and Aerostand (right) for single-engine craft. Left center—built-in DC-3 steps. Right center—Sky Lift fork truck with 130-in. reach. Bottom—deluxe Aeroramp for passengers (left), Hammond fueling ladder (center) and Model 20-L Aerostand (right) for 4-engine craft.

parked. Operated by one man, the Gasporter has a 200-gallon capacity, compartments for carrying lubricating oil and accessories, is equipped with automatic shut-off nozzle, and has a three-way valve—for plane de-fueling, for replenishing the tank, and for fuel transfers. Powered by a 4-cylinder, 28-hp. Crosley Cobra engine, the Gasporter is eleven feet long and four feet high.

Servicing and repairing the larger-than-average single-engine planes often used by non-scheduled operators for contract or charter work is made easier with the Model 4 Aerostand, a portable work stand developed by the Airquipment Company of Burbank, Calif. Easily moved up and down the ramp by one man, the Aerostand is constructed of welded steel tubing, has a work height of four feet, and has skid-proof steel platform and steps. Two casters are permanently mounted on the rear legs.

Several manufacturers have announced deluxe ramp equipment for loading and unloading passengers. Typical of these designs is the Aeroramp, an attractive loading stand which may be quickly adjusted by one man. Manufactured by the Airquipment Company, the unit features self-leveling steps, a low platform height of 49 inches and a high platform height of 120 inches, and is raised or lowered by a hand-operated hydraulic pump.

To simplify loading stand problems, West Coast Airlines has developed a unique system of steps attached inside an airliner door. Operated from inside the transport by a single flight attendant, the door is hinged at the bottom and, when lowered, eliminates any wait for ramp equipment. Cables which raise and lower the door also serve as hand rails. The novel door was designed by Ernie Code, operations manager for WCA.

Four-engine planes, while ideal for fast schedules and load carrying, present new problems in fueling and cargo handling. One solution to the fueling problem is the Hammond fueling ladder, a one-man-operated unit which may be adjusted for heights ranging from 6 ft. 7 in. to 16 ft. and will accommodate any type airplane ranging from the DC-3 to Lockheed's new Constitution. The fueling hose is held by a sheave and is raised with the stand. The Hammond Manufacturing Corporation, Huntington Park, Calif., is the manufacturer.

To facilitate handling of four-engine cargo, the Automatic Transportation Company of Chicago, Ill., recently announced the Sky Lift—an electric fork truck whose hydraulic lift will extend 130 inches above the floor. Scheduled for early 1947 production, the Sky Lift will be made in 2,000, 3,000, and 4,000-pound load capacity models. It is said to be the first electric fork truck with full automotive-type controls. Brake pedal, steering wheel and foot accelerator are all identical to those of a car. A single lever, just below the steering wheel, controls lift and tilt.

Repair work on four-engine transports demands a working platform often as high as 20 feet above the ground, particularly when work is to be done on tail surfaces and rudders. Typical of the type equipment needed for this work is Airquipment's model 20-L Aerostand, a towering work stand which is easily adaptable to any height between 13 and 20 feet. Steps are self-leveling and the stand may be adjusted to desired positions by a manually operated hydraulic pump.

FLORIDA AIRPORTS

(Continued from page 32)

for fuel in Florida was found to be as high as in any other Southern state although Florida's aviation fuel is state tax exempt. The municipalities and vendors as well as the private airports are taking full advantage of this lack of state tax and employing the profits to balance the operating budgets on the airports where the fuel is sold. In this way the money collected from aviation is spent directly on aviation at the local level. The savings have not as yet been passed on to the flying public but probably will be as the volume of aviation fuel increases. ★ ★ ★

Airport Supply Firm

The Airport Supply Corporation has begun operations in Chicago as specialists on the equipping of airports and aircraft repair shops, according to Ross I. Edwards, president.

Booklet on Design

"The Airport Terminal Building," a booklet distributed by Giffels & Vallet, Inc., associated engineers and architects of Detroit, introduces their technical study of terminal building design. The booklet is the second in a series outlining the firm's aviation consulting services.

PORTABLE FUELER for lightplanes may be used at fixed location or mounted with tank on any type vehicle and will meter up to 30 gals. per min. Free bulletin is available from Smith Meter Co., Los Angeles

Fifty-Four More Airports Honored with Awards

In addition to the 17 Northeastern airports designated last month as worthy of the Good Airport Operating Practice Certificates, 54 other airports in the continental United States have been awarded the certificates by National Aeronautic Association. The awards were made on the basis of tabulated safety and service requirements as verified by committee inspectors.

Among Southern fields receiving certificates are: Smith-Reynolds, Winston Salem, N. C.; Abernathy Field, Pulaski, Tenn.; Memphis Flying Service, Memphis, Tenn.; Paducah-McCracken County, Paducah, Ky.; New Orleans, New Orleans, La.; Eagle Springs, N. C.; Auburn-Opelika, Auburn, Ala.; Cannon, Charlotte, N. C.; Milledgeville, Milledgeville, Ga.

Midwest regional winners include: Chagrin Falls, Chagrin Falls, Ohio; Versailles Municipal, Versailles, Mo.; Great Falls Municipal, Great Falls, Mont.; University of Illinois, Champaign, Ill.; Weir Cook, Indianapolis, Ind.; Youngstown Municipal, Youngstown, Ohio; Horlick-Racine, Racine, Wisc., Goshen Municipal, Goshen, Ind.; Columbus Municipal, Columbus, Ind.; Lambert St. Louis Municipal, St. Louis, Mo.; Virginia Municipal, Virginia, Minn.

Winners in the Western States were: Kern County, Bakersfield, Calif.; Farmington, Farmington, N. Mexico; Cheim Field, Marysville, Calif.

Eastern airports, excluding the 17 winners of the Northeastern states (SOUTHERN FLIGHT, Dec., 1946), awarded certificates were: Lock Haven, Lock Haven, Pa.; Alton Bay Seaplane Base, Alton Bay, N. H.; Bass Point Seaplane Base, Blaisdell Lake, Bradford, N. H.; Baltimore Municipal, Baltimore, Md.; Waynesboro Airport, Waynesboro, Pa.; Splane Memorial, Oil City, Pa.; Morrisville, Morrisville, Pa.; Layfield, Gilbertsville, Pa.; Laconia, Laconia, N. H.; Burlington Municipal, Burlington, Vt.; Fli-Rite School of Aviation, Swanton, Vt.; Twin State Airport, White River Junction, Vt.; Keene Municipal, Keene, N. H.; Conway Valley, Conway, N. H.; Daniel Webster, Nashua, N. H.; Lafayette, Portsmouth, N. H.; Nantucket, Nantucket Island, Mass; Bloomsburg Municipal, Bloomsburg, Pa.; Whipp Glen Burnie, Glen Burnie, Md.; Lavery's Seaplane Service, Round Lake, N. Y.; Allegheny Valley, Tarentum, Pa.; Boire Field, Nashua, N. H.; Portsmouth Municipal, Portsmouth, N. H.; Bristol Municipal, Bristol, Vt.; Conneant Lake, Conneant Lake, Pa.; Allentown-Bethlehem, Allentown, Pa.; Claremont Municipal, Claremont, N. H.; Benedict, Booths Corners, Pa.; Concord Municipal, Concord, N. H.; Berlin Municipal, Berlin, N. H.

● *Top Speed, 184 mph; Cruising Speed, 175 mph; Landing Speed, 46 mph; Range, 750 miles*

Complete Your Company's Transportation "System"

with a Beechcraft BONANZA

THE company truck and the company car are now joined by the Beechcraft Bonanza. For it hurdles long distances at 175 mph, speeding executives and personnel around the country with four times the efficiency of surface transportation—and at a cost as low as one cent per passenger mile!

No ordinary airplane is capable of the utility required of a business vehicle. But the Bonanza is an *extraordinary* airplane. It was *built* for business use, business utility, business economy. It has a speed and a payload with its economical 165 hp which have never before been accomplished short of 330 hp!

Its cabin for four people provides limousine luxury and comfort—thoroughly soundproofed, as quiet as an open-window car traveling at 55 mph. It is fully equipped—heater, two-way radio, landing lights and instruments for accurate and safe navigation; retractable tricycle landing gear, landing flaps and controllable prop for easy handling and added economy of operation.

The man-hours, money and travel fatigue which the Bonanza saves as a unit of your company transportation "system" repay many times its modest cost. The price complete is $7,345 F.A.F. Wichita. Production for early 1947 is already sold. Orders for delivery will be filled in the sequence received. There is a nearby Beechcraft distributor with complete facts and figures ready to consult with you. Beech Aircraft Corporation, Wichita, Kansas.

BEECHCRAFT
BONANZA
MODEL 35

Formula for Winning Airport Elections Analyzed at Illinois Aviation Conference Featuring Airports

By GEORGE A. SCHEUER

Advice on "How to Win an Airport Authority Election" was given proponents of such proposals in one of the most helpful of the addresses at the fourth biennial meeting of the Illinois Aviation Conference, December 17, at the Drake Hotel in Chicago. Airports was the chief topic at the meeting.

R. Karl Baker, of the Chamber of Commerce at Jacksonville, Ill., told the conference, which was attended by airline vice presidents, CAA officials, airport operators and others interested in aviation, how his city set out on a three-year program of preparation for a successful vote to establish a bond-issuing and tax-raising unit for an airport. Three steps stressed in the campaign were:

1. Education of the entire community to the need for the proposal. This was done by conducting a series of meetings with various groups such as the Farm Bureau units, AFL and CIO union locals and women's groups such as the League of Women Voters.

2. Publicity through every means. The press was given pictures and news stories of the progress of the campaign. Radio stations were induced to broadcast forums in which proponents of the airport proposal met with various groups and answered questions. Window displays showed where the airport would be and how it would be used. One showed a miniature airport with approaching planes. A pamphlet telling the need and possibilities of the airport was prepared and mailed to every one likely to be interested. The pamphlet also was distributed at meetings and to all school children.

3. Election day contact with all voters possible. Employers were called upon to give workers an hour off for voting and bulletin board notices prepared calling all out for the vote.

Baker reported the election returns showed a two-to-one vote for the proposal with only one precinct voting against it by a narrow margin.

In a companion talk, Ron Henrekin, Kankakee, Ill., related how his community lost a similar election. "We took in too large a territory," said Henrekin, "and lost through the opposition of some of the smaller communities in the area."

He added that workers for the proposal had been overconfident of victory. Present plans there call for a new vote on a smaller area eliminating some of the towns known to be opposed. A careful educational campaign similar to that used at Jacksonville is under way in an effort to assure success the next time.

Other speakers at the conference, called by Louis E. Leverone, of Chicago, its president, stressed the need for co-operation of all the varied interests of the aviation industry.

General James Doolittle, Shell vice president, who spoke briefly at the luncheon session, declared that the teamwork used to win the war had been forgotten in the peacetime scramble for profit.

Admiral Harold B. Miller, TWA vice president, called upon smaller communities desiring airline service to be prepared to provide enough air travel prospects to justify scheduled operation.

John W. Friedlander, Middletown, Ohio, president of the Aeronca Aircraft Company, pointed to the lack of adequate airport facilities as evidence of the aviation industry's failure "to come of age" despite the 43 years since the Wright brothers first flew.

Arthur R. Currey, Galesburg, Ill., president of the Illinois Airport and Operators Association, gave the conference a report on his organization. He told of the fixed base operator's need for the co-operation of his community in offering adequate service.

ILLINOIS AVIATION CONFERENCE speakers were headed by General James H. Doolittle (right, at microphone), vice president of Shell Oil. Seated at the table, left to right, are Arthur H. Currey, Galesburg, Ill., president of the Illinois Airport and Operators Association and NATA governor; Louis E. Leverone, conference president; John Friedlander, Aeronca Aircraft president, and a speaker, and Admiral H. B. Miller, TWA vice president.

—(SOUTHERN FLIGHT Photo, by Edgar K. Jaffe.)

Haire Trophy Winners Announced by NAA

Winners of the four Haire Airport Trophies, awarded annually by National Aeronautic Association for exceptional achievement in airport management, planning, development and operation, have been announced.

The winners are Robert F. Shank, owner and operator of Shank Airport, Indianapolis, a close-in airpark; Shelby Kritser, owner and operator of Tradewinds Airport, Amarillo, Texas, an airport serving only non-scheduled aviation; Hervy Fuller Law, manager of Washington National Airport, Washington, D. C., and Douglas O. Langstaff, manager of New Orleans Moisant Airport, an international airline terminal.

The awards go to individuals or organizations responsible for outstanding achievement in connection with the four types of airfield facilities.

Michigan Publishes Handbook of 156 Airports

The Michigan Department of Aeronautics has published a handbook, in handy loose-leaf form, containing diagrams of the 156 airports and landing areas in the state. Each page consists of a diagram showing location of airport; a close-up dimensional sketch of the airport, and a table of information which includes the name of the county, location on map, field altitude, latitude, and longitude, and type of gasoline available at the field. The book is entitled: "Michigan Airports, Airfields and Landing Areas."

Minnesota State Funds Ready for Airport Grants

The Minnesota Department of Aeronautics' development program, which has been conducted under the law passed by the 1945 State Legislature, will be co-ordinated with the federal airport program as the federal funds become available.

In administration of the state program $2,000,000 in certificates of indebtedness was authorized to be expended, although only about half of this amount has been used, according to L. L. Shroeder, Commissioner.

The smallest project cost approximately $14,000; the largest will cost about $300,000. The program has completed the development of runways, and the installation of pressure water systems and sanitary waste disposal on municipally owned airports. At five major fields a substantial amount of work has been done.

With the availability of federal funds, it is contemplated that the financing of airport development will be one-fourth municipal, one-fourth state, and one-half federal for planning and construction, and for land acquisition one-fourth federal, one-fourth state, and one-half municipal.

Combination of Landing Systems Seen as Offering All-Weather Flying Now

Landing aids now available, if combined into an integral system, can make all-weather flying possible and speed up operations along the nation's airways. That was the opinion expressed by directors of a joint AAF-Navy-CAA research project which recently completed tests under adverse weather conditions at Landing Aids Experiment Station, Arcata, Calif.

Best approach to all-weather flying, the tests revealed, lies in using an instrument landing or ground control approach system as the backbone of an integrated system. To either of these the researchers would add a system of high intensity approach and runway lights and high pressure fog dispersal equipment to insure visual contact with the runway under ceiling zero conditions. Although equipment necessary to complete this recommended arrangement is available or in production now, limited funds will permit only instrument landing and lighting installations at key points along the airways. Simultaneous use of the three aids—GCA or ILS, fog dispersal and lighting—was termed out of the question for the immediate future due to cost.

During test runs at Arcata, a pilot made an approach with a zero ceiling and visibility of 600 feet. Fog dispersal jets were ignited as the plane flew over the outer marker of the instrument landing system. In two minutes and three seconds, stars were visible directly over the field and the pilot made a normal approach and landing.

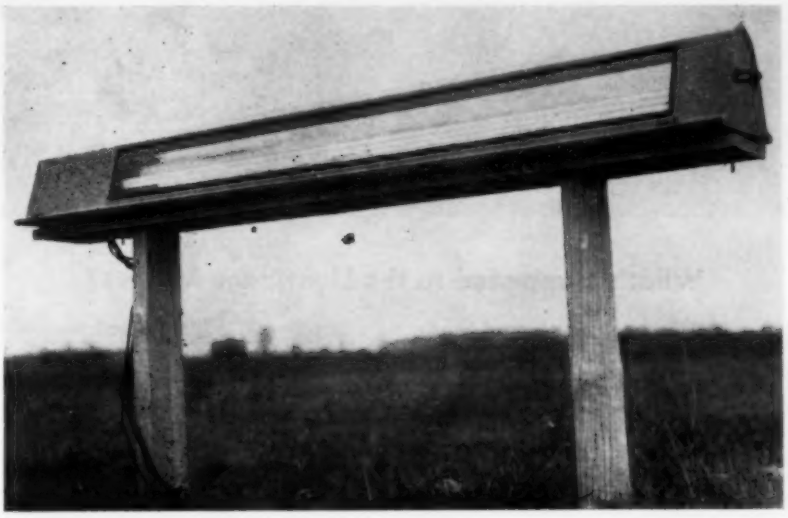
Lack of CAA Funds Closes 57 Communications Stations, Three Towers

Operation of fifty-seven aeronautical communications stations and three airport traffic control towers must be discontinued, and operations of six traffic control towers curtailed as a result of insufficient funds, the Civil Aeronautics Administration has announced.

Communications stations discontinued are: Region 1: Brookville, Pa.; Dansville, N. Y.; Dunkirk, N. Y.; Glen Falls, N. Y.; Houlton, Maine; West Lebanon, N. H.; Montpelier, Vt.; Morgantown, W. Va.; Providence, R. I.; Sunbury, Pa.; Wilkesbarre, Pa.; Danville, Va. Region 2: Tylertown, Miss.; Lane, S. C.; Evergreen, Ala.; Anniston, Ala.; Anderson, S. C. Region 3: Ashley, N. D.; McCool, Ind.; Archbold, Ohio; Port Clinton, Ohio; Melroy, Ind.; Cherry Park, Ohio; Warsaw, Ky.; St. Ignace, Mich.; Cadillac, Mich.; Golva, N. D.; Frontenac, Minn. Region 4: Anton Chico, N. Mex.; Clarendon, Sulphur Springs, Navasota, Yoakum, and Palacios, Texas. Region 5: Cassoday, Kan.; Big Springs, Neb.; Coffeyville, Kan.; Lamoni, Iowa; Montezuma, Iowa; Overton, Neb.; Phillip, S. D.; Spearfish, S. D. Region 6: Gabbs Valley, Nev.; Trona, Calif.; Fallon, Nev.; Tonopah, Nev. Region 7: Arlington, Ore.; Easton, Wash.; Custer, Mont.; Malad City, Idaho; Ontario, Ore.; Gooding, Idaho; Stevenson, Wash.; Kelso, Wash.; LaGrande, Ore.; Strevell, Idaho.

Towers to be closed are: Region 1: Bangor, Maine. Region 6: Red Bluff, Calif., and Winslow, Ariz.

Towers reduced to 16 hours daily operation: Region 4: Abilene, Austin, Brownsville, Big Spring, and Corpus Christi, Texas, and Little Rock, Ark.



Boundary marker used in CAA test cost about $100 each, has gas-filled tubes for two-color illumination twenty times the brilliance of neon lights. Their heat keeps glass case defrosted and free of snow and ice.
—(CAA Photo.)

Low-Cost Lighting System

SMALL airports can be adequately lighted for night flying at a cost of about $2,600, the CAA reports after service tests conducted with an experimental installation at Aretz Field, a private airport near Lafayette, Indiana. Adapting a two-color boundary lighting principle in operation for three years at Indianapolis Municipal Airport, the CAA revised marker spacing and power requirements to fit small airport budgets. To these boundary markers the CAA added four obstruction lights and a lighted wind tee—all for a total cost of less than $2,600. By contract, the CAA admitted, this cost would be increased.

The experimental installation was set up to light a rectangular field measuring about 1,000 by 2,000 feet. Boundary markers, mounted in pairs parallel to the ground, show red on the side toward the airport, warning the pilot he must be in the air when crossing the boundary on take-off, and green from the outside showing the pilot it is safe to land beyond the light. These boundary lights are usually spaced 300 feet apart at municipal airports but, since private fields do not operate in instrument weather, the CAA deemed it permissible to increase spacing to 900 feet. Aretz Field required three markers on the short end and four on the long sides of the rectangular field. More markers would be required for odd-shaped fields, the CAA explained. Four 45-foot poles for obstruction lights and a folding steel pole for an illuminated wind cone completed the installation.

Tests revealed the lighting arrangement will identify the airport for a pilot flying at 1,000 feet for a distance of 15 to 18 miles and, in one exceptional case, the lights were seen from 30 miles away. Expected to cost about $100 each, the markers are visible from 10 degrees below the zenith and through a horizontal angle of 150 degrees. Enough heat is generated by the tubes to keep the glass cover free of snow and ice. By using ceramic electrodes in the tubes to reduce voltage required, the CAA operated the system at an electrical cost of fifteen cents per hour.

The lights are gas-filled tubes, using 750 volts. They are twenty times as bright as the neon lights used in electric signs. ★ ★ ★

What's Happened to the Lightplane Market?

ABOUT two years ago, when the war was going to end and a lot of people were interested in getting new planes for themselves, we came out with some figures showing that even with the most inexpensive two-place personal airplane, it would require a person making an income of at least $500 per month to support such an airplane unless it were used in connection with a paying business.

A good many people immediately jumped us, saying there was going to be a tremendous boom and thousands on thousands of airplanes were going to be sold. However, we went back and got out ye old Air Market Data Service (by the publishers of SOUTHERN FLIGHT) and checked through the Department of Commerce figures for families having incomes of over $5,000 per year, as shown by income tax records. In the whole state of Texas, it appeared there were only a few counties with enough of such persons to support a half-way decent airport and we presumed that most other states are comparable.

The figures upon which we had based the ability of the average person to own an airplane were pre-War II cost figures. As it turn out, there is not an airplane offered to the general public at this time that approaches the cost of comparable equipment before the war. Of course, almost every salesman and manufacturer will contend that the airplanes are so much better than they were before, but the truth remains that today's airplanes will not do any more than 1941 airplanes as far as rendering service is concerned, although they cost from 50 to 100 per cent more. This cost increase means you immediately have more insurance and depreciation expense.

It happens, too, that since we brought out those figures, a good many people have been doing things to our taxes. Gasoline taxes are higher and the prices of gasoline are, in general, higher. Other costs have gone up to beat the band and we find that just to get a mag checked on an engine, according to our latest bill, costs us $55. So we don't see how as many people can afford to own airplanes now as before the war, unless there are an awful lot more people making $500 per month. That we are inclined to doubt.

The whole picture changes if there is some utility to the airplane that will pay off. Such might be the case where the plane is used in sales efforts and for rapid transport of personnel or for business transport. Airplane expenses on this basis compare very favorably with any other form of transportation.

At any rate, we were lulled into a state of coma by the fact that a number of different airplane companies reported that they received as many as 14,000 to 20,000 inquiries and a great many of them had collected deposits of one sort or another in tremendous quantities. It develops, however, that in less than one year of private airplane production, apparently the market is temporarily saturated and a lot of manufacturers are caught, so to speak, behind the eight ball.

There are a number of things that might be done to stimulate the sale of private airplanes and those things constitute a major long-range project.

No Place to Go

IN our last column, we mentioned that there were a lot of places we would like to go in our airplane but found it almost impossible, or, at least, very impractical, because no facilities for the use of aircraft existed at or near the point we wished to visit.

Ever so often, a magazine comes out with a picture of an aviation country club where people are sitting around with airplanes parked under trees, and golf courses, swimming pools and everything else in evidence on all sides. However, we haven't personally found a single one of these setups. There are some nice airports to which we can go and stay over the weekend, meeting a good many airport habitues, but there is no golf course, there is no swimming pool, there is no fishing, there is no boating and the town is a long ways off and you are without a car.

At Grand Lake (Lake of the Cherokees), northeast of Tulsa, Oklahoma, fishing is wonderful, and boating has become popular, but there still is not an airport with service on it anywhere near the useable part of the lake. There are a few rough, short meadows in which some daredevils are wont to land their craft, but there is no airport with marked runways, hangar service, gasoline facilities or anything else. If a person takes his airplane, he has the hazard of leaving it out, subject to wind storms and other weather conditions, and he has to hoof it to the closest place to eat or stay. This is quite impractical, since all the eating places are about 10 to 15 miles from the usual fishing places.

The same thing is true of Lake Texoma, at the border of Texas and Oklahoma, a lake about one hundred miles long which has wonderful scenery and good fishing spots. There is no airport bordering the lake at any point. There is a nice airport at Durant, some eight to twelve miles away. There is a nice airport at Gainesville, an equal distance from any water. But you might as well stay where you are as far as getting back and forth to the lake is concerned.

Previously, we have submitted some notions about how some of these defects could be remedied by rent cars and by other forms of transport that might be made available, such as busses, etc. However, it does not appear at this time that any of these ideas have taken on to any extent that would be very helpful to private aviation in general.

A much better approach might be for someone to persuade filling station owners at appropriate places to smooth off and keep mowed suitable landing strips and to provide fuel and oil servicing and even perhaps small mechanical adjustments. This would not cost anything of consequence and would provide additional income for filling station operators, most of whom, especially in isolated places, do none too well at the present time. As these projects become more popular, they would undoubtedly be able to provide some sort of hangar service. In the meantime they could provide adequate tie-down facilities and care. Such a filling station operator, probably would have some kind of transportation and might render some sort of taxi service.

Poor Workmanship Handicaps Aviation

One of the most serious handicaps to the expansion of private flying is the problem of obtaining adequate service on aircraft and engines at a reasonable price. There is still another bugaboo that frequently discourages new owners—in buying a used airplane, it is next to impossible to ascertain exactly the condition of the airplane until it has been used for several months.

We recently purchased a twin-engine Cessna that had been just re-licensed and had apparently received CAA inspection. We were advised everything was in perfect working order. But the first time we came in a little after sundown and turned on the navigation lights, they failed to work and blew out a fuse. Upon attempting to use the landing lights, they did not work at all. Other things were haywire—radio equipment worked intermittently and some of the instruments did

(Continued on page 46)

PRATT & WHITNEY ENGINES *Power the DC-6*

The Douglas DC-6 brings new standards of speed, comfort and operating economies to these great airlines: American, Braniff, Capital, National, Panagra, United, Western, A. B. Aerotransport (Sweden), D.D.L. (Denmark), D.N.L. (Norway), F.A.M.A. (Argentina), K. L. M. (Netherlands), Peruvian International (Peru), Sabena (Belgium), and S. I. L. A. (Sweden).

Every DC-6 in these expanding fleets will be powered by 4 dependable Pratt & Whitney Double Wasp engines.

PRATT & WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

Logging the COAST

by Midge Winters

New Projects, Mostly Military, Brighten Coast Outlook

REVERSING the New Year's custom of looking back over the old, we decided to survey the West Coast aircraft program for '47. And despite economic conditions, it provides not too gloomy a picture.

Perhaps the picture would be even brighter if we could break through military censorship, which puts the war's "top-secret" orders in the shade. Were we a soothsayer, we would predict that the United Nations will never crack the shell encasing current military projects. It's that tough.

NEW RYAN JET: However, starting with our Southern neighbors in San Diego, we find that Ryan's 1947 program will be one devoted primarily to research and development rather than actual production. In the fire is the development of a single-seat, entirely new fighter labeled "confidential." It is a jet job based on the jet-plus-propeller-combination principle which Ryan originally worked out in the Fireball. However, the new fighter will be new from the ground up.

Ryan will continue development and flight research on the Fireball. While not in production now, previous models are being modified and equipped with rocket launchers prior to going to sea. Also on Ryan's calendar is further research in sonic and super-sonic speeds, pilotless aircraft guided missiles, jet rockets and others in the Buck Rogers classification. As for commercial aircraft, no. Ryan is still interested—as a matter of fact, still looking over the field as to design and market—but is not announcing any specific plans. Research on helicopter rotor problems will be continued, but no helicopter production models are planned.

Fifty per cent of Ryan's program will continue to be the manufacture of exhaust systems for conventional aircraft and a new test cell has been installed for research on exhaust systems and accessories for jet engines.

C-99 NEARS FLIGHT TEST: If all goes as planned, the publicity department at Consolidated-Vultee is going to be busier than a beaver along about March or April. Then flight debuts of the XC-99 and the XB-46 are expected. The 99 is the 400-passenger ship, commercial version of which has long been heralded by Pan American World Airways. The XB-46 is a jet bomber on the confidential list. Consolidated's military program also includes further development on the P-81 jet fighter, the L-13 all-metal liaison ship, as well as pilotless aircraft and guided missiles.

Commercially speaking, Consolidated expects to fly the 40-passenger, pressurized, twin-engine Convair 240 sometime this month. Several are on the final assembly line right now and within several months production should reach about one a day. Six domestic and foreign airlines await delivery. At the company's Wayne, Mich., plant the 1947 Voyager 150 and the new Flying Station Wagon are going full speed ahead with hopes of capturing the lightplane market.

BOEING 417 SHELVED: Heading north to Seattle, we find that Boeing has suspended its 20-passenger transport project known as the Boeing 417. Reason: uncertain market conditions. Designed for feeder airline operation, the ship was in the engineering and preliminary tooling stage when shelved.

Boeing expects to deliver the first Stratocruiser to Pan American by early summer and delivery of 55 subsequent ships should be started by mid-summer to airlines awaiting them. This represents a $75,000,000 program.

Ten Stratofreighters, Army C-97 cargo version of the Stratocruiser, will be delivered even sooner. As a matter of fact, the first one should be out of the door by the time this column goes to press. Also on Boeing's military program are guided missiles.

Confidential is Boeing's experimental production contract with the Army for a multi-jet bomber known as the XB-47. On the same censored list is Boeing's experimental liaison plane known as the XL-15 under development at Wichita. It is undoubtedly of the same series as Consolidated's L-13. However no announcement will be made on details of the ships until after the first of the year. It is significant that the Army is developing liaison ships now, because World War II caught the military with no such aircraft and liaison planes were simply modifications of civil types.

MERCHANDISING FOR CONNIE: Back at home base in Los Angeles, Lockheed is developing a commercial program for 1947 involving only the Constellation. Scheduled for appearance is an improved Connie known as the 649 version, which will in no way make previous models obsolete, but which will have sleeper facilities, improved pressurized cabins and a maximum cruising speed of 335 mph. A sleeper version will accommodate 24 sleeping passengers and two sitting up. A daytime version will accommodate 64 passengers.

Lockheed's military program, of course, includes the jet P-80's, the P2V's, and the Constitution, two of which should be delivered soon to the Navy. Here again we find military secrecy on such research as pertaining to guided missiles and sonic and super-sonic developments. The firm's Little Dipper for private fliers is hanging beside a dry well, shelved.

FIVE-PLACE MIXMASTER: Major activity at Douglas during the coming year will be the production and delivery of the 153 DC-6's now on order. (Undoubtedly this figure will curve higher as the year unfolds.) This luxurious commercial job has already been delivered to United and American Airlines—three each.

Douglas has also come out with a surprise development in the lightplane class—a five-place ship described as "purely experimental." Designed on the same order as the Mixmaster, with shafts driving a tail-mounted propeller, the new ship boasts both twin-engine safety and superior single-engine performance.

If one engine goes out there is no yaw, no tendency to fall off on either side; accordingly Douglas officials believe that any single-engine pilot will be licensed to fly it without twin-engine experience. What the price or the market will be Douglas hasn't revealed.

Military program of Douglas will include a $50,000,000 order on the AD-1, Navy dive and torpedo bomber, as well as development of two different supersonic jobs (for the Navy) now nearing flight tests.

Douglas is also developing a supersonic rocket-propelled fighter for the military, highly restricted but nevertheless considerably beyond Bell's XS-1 now being tested at Muroc. A half-dozen guided missiles plus a super hush-hush warfare research program are also under way—and under wraps.

NAVION OUTLOOK OPTIMISTIC: At North American a new jet-propelled shipboard fighter in the 500-mph.-plus class has been tested for the Navy and is known as the XFJ-1. The single-engine, low wing monoplane, which resembles a flying bomb, is North

American's entry into the field of jet propelled military aircraft and will be the company's top military project during the coming year.

Commercially, North American announces that its Navion lightplane is coming off the assembly line at the rate of seven a day and within a short time will reach ten a day. Certainly not following the pessimistic trend of thought among lightplane manufacturers, North American is very optimistic about the future of the Navion and no price change is expected at this time or within the coming year. Optimistic? And why not with an $8,000,000 backlog of orders and customers to grab the ships as fast as they come off the line.

Officials say they are selling to people in every line of work, recently sold a Navion to a fellow in the cattle and livestock trucking business who plans to use the ship to fly parts to his trucks when they break down. This will keep the cattle and livestock from having to stand long hours in broken down trucks and hasten their trip to the slaughter house.

The Navion also is perhaps the only ship to have a fan club started by movie stars. Producer Victor Fleming, Actors Allen Jones, William Powell and others expect to start a Navion flying club soon with hangars in Van Nuys.

Another Roadable

FOLDING wings have appeared again in the lightplane field this time on the Plane-Mobile developed by Stanley D. Whitaker and Daniel R. Zuck, both aviation executives known in Los Angeles area.

The two-place, roadable ship features two gull-like wings which can pivot at the center section and swing back in an overlap above the ship. Whether or not the ship gets beyond the experimental classification depends entirely upon test flights of wing control, according to Whitaker.

Also a radical feature is the combination of ailerons and elevators called "ailerators" by the designers. Successful testing of this innovation would also mean a lot in the development of the flying wing, according to Whitaker. There are no production plans for the ship at this time.

LIGHTPLANES FOR OIL INDUSTRY

CONCENTRATING on oil production industry prospects, Funk Aircraft Company has assigned two prominent oil field equipment salesmen as direct factory sales and service representatives to work with distributors and dealers in the Southwest and West.

J. W. Tinsley of Dallas will represent the factory in Texas and Owen Estepe of Tucson will represent the factory in the West. Both have covered the same territories for many years for Jensen Brothers of Coffeyville, Kansas, manufacturers of oil field equipment and senior partners in Funk Aircraft Co.

Jensen is currently faced with a serious shortage of steel for its oil field products and has over a year of production already on the books awaiting raw materials. But Funk's aircraft sales backlog has been largely filled and sales stimulation is needed for future production. Since the oil industry is one of the primary fleet users of aircraft, decision was made to concentrate on it for new sales and to capitalize on the wide acquaintances of Tinsley and Estepe throughout the oil fields—they will call on the same prospects for airplanes as they have called on for years in selling oil field equipment.

Joe Funk, one of the aircraft company partners, said the new direct factory representatives will assist local dealers in every way possible. They will find their own prospects, cultivate sales and guide them through the dealers for continued servicing. After each sale, the factory men will contact Funk owners periodically to determine their further needs.

Sky-Skooter Headed for Flight

STATIC tests have been completed on the Sky-Skooter by Thorp Aircraft Company and now the goal is completion of CAA flight tests, according to Robert E. Reedy, director of sales. These tests should be completed within the next 30-60 days.

Designed by John Thorp, president of the company and active in aviation since 1929, the Sky-Skooter is an all-metal ship with a low wing, bubble canopy, tricycle landing gear (not retractable), and two-place cabin. It may cruise over 100 mph. and has a range of 400 miles.

It was designed to be the answer to the private flier's prayer for a low-cost airplane but the price has not yet been announced. Tooling has already been started at the aircraft plant in Van Nuys and production is scheduled to start in March or April.

There is just one item of concern for both Thorp and Reedy, and that is the consistent rumor that the Sky-Skooter follows the same design as the Little Dipper, developed by Thorp while he was associated with Lockheed. The Sky-Skooter is an entirely different ship from the Lockheed experiment, they emphasize, vehemently denying a likeness.

Lockheed Terminal Still Busy

BECAUSE of the publicity campaign conducted to acquaint the public with the mass move of Los Angeles' major airlines to Los Angeles Airport, some were erroneously led to believe that Lockheed Air Terminal, long the airlines' base of operation, had gone out of business.

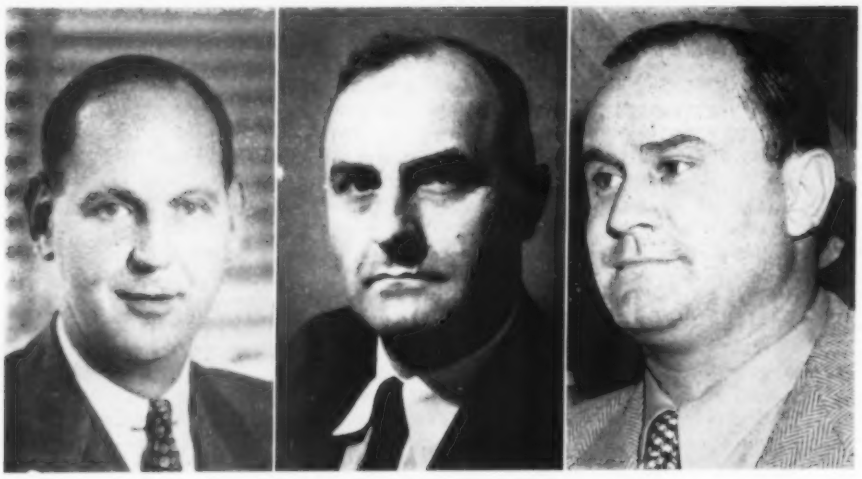
Such thinking is a far cry from facts. Actually all of the airlines except American (UAL, TWA, WAL, PAA, and Southwest) will continue to operate as high as 20 per cent of their flights from Lockheed. Including the schedules of other carriers such as Slick, Matson and KNILM, Lockheed will still have some 200 flight schedules per day.

Private Planes Back at LAT

THE battle between Jack West and Lockheed Air Terminal as reported in my last column came to an end almost as quickly as it flared up when terminal officials announced that "because of the decreased airline schedules caused by the move to Los Angeles Airport" the $2.50 landing fee for private aircraft had been abolished. Now peace reigns supreme as private planes equipped with two-way radio may land and take-off from LAT without cost.

★ ★ ★

NORTH AMERICAN'S NEW XFJ-1 JET FIGHTER, called the Navy's fastest, is a single-engine, single-seat, low wing monoplane with tricycle landing gear and droppable wing-tip tanks. Wing span is 38 feet, one inch; length, 33 feet, seven inches. Powered by a General Electric jet, it is built for carrier and land operations and represents North American's entry into the field of jet propulsion military aircraft.



ADMA SPEAKERS: John W. Friedlander, left, president of Aeronca Aircraft Corporation, was a featured speaker at the 4th Annual ADMA meeting held at Chicago in mid-December. Friedlander spoke on "Problems of the Personal Aircraft Manufacturer." A. A. Vollmecke, center, chief of the CAA's airframe and equipment division, discussed the CAA's recently-inaugurated plan for approval of lightplane components and materials. George W. Jalonick, III, right, spoke on distributor-manufacturer relations and injected constructive ideas on policy-making and sales technique.

Second-Hand Marketing of '46 Planes Blamed on Unwise Sales

Emphasizing that the days of a "buyer's market" are gone, John W. Friedlander, present of Aeronca Aircraft Corporation, warned the 4th Annual Meeting of the ADMA in mid-December that the industry must begin exercising more care and judgment in the ultimate distribution of personal aircraft. Appearance of new airplanes on the second-hand market, he explained, indicate that in many cases dealers have sold airplanes to people who had no business owning them. "It might well be that we would be taking a great forward step toward establishing our industry on a stable basis," Friedlander suggested, "if we sat down with the prospective purchaser and fairly and frankly reviewed not only his financial status but also whether or not he can actually use a plane to advantage."

Citing the excellent production record of the personal aircraft industry in its first postwar year—some 40,000 units—Friedlander said it seems quite paradoxical that some people are predicting the bottom will drop out of the personal plane market. "I cannot sympathize with those who hold this pessimistic view," Friedlander declared. "On the contrary I feel that the personal plane industry is confronted with a marvelous opportunity to establish itself as one of the basic industries in the world of transportation."

New Officers

Officers elected at the final session are: A. J. Weatherhead, Jr., Weatherhead Company, Cleveland, president; R. B. Kenty, Air Associates, Inc., Dallas, vice president, and A. E. R. Peterka, Lamson and Sessions Company, Cleveland, vice president.

Retiring President W. F. Scott, Jr., Robertson, Mo., was named to the advisory board with Ray Snyder, Snyder Aircraft Corp., Chicago, who was renamed. H. Donald Richards, Philadelphia, was re-elected secretary and George A. Fernley, Philadelphia, was renamed executive secretary.

George W. Jalonick, III, Dallas; J. G. Bausher, New York; Duane Stranahan, Toledo, and Harold F. Wood, Birmingham, Ala., were re-elected directors. Walter B. Hawkins, Glendale, Calif., retiring vice president was elected a director as were R. M. Durham, Flushing, N. Y.; A. W. Whitaker, Portland, Ore.; R. J. Montgomery, Warren, Ohio; A. M. Recker, Akron, and T. G. Tynan, Philadelphia.

Urges Closer Co-operation

The short-comings of personal aviation's antiquated selling and distribution methods came in for critical analysis by George W. Jalonick, III, president of Southwest Airmotive Corporation. "I'm amazed when I look at photos of such things as jet-propelled aircraft, helicopter, rockets, and atom bomb plants and realize that all these have been developed at a time when aviation hasn't yet been able to develop a 20th century way to peddle its wares," Jalonick said. Pointing to faults in present manufacturer-distributor arrangements, Jalonick said manufacturers should more closely study distributor needs and problems in specific areas. Manufacturers do make an effort to keep their fingers on the "public pulse," but "it's still impossible for them to pick up as much valuable information as we do by sticking our necks out over the firing line 365 days in the year," he commented. He stressed the need for closer consultation with distributors when factory policies are being made.

Improved Public Relations

To properly sell aviation, the industry should establish machinery for a co-operative program of advertising and public relations—a program supported by every company and individual who depends upon aviation for a livelihood. This was the opinion of Al Harting, public relations director of Southwest Airmotive Corporation, Dallas, who said few products have been as badly handled as the airplane from the standpoint of both advertising and publicity. "There have been more misleading statements, more untrue insinuations and more grandiose claims made about and for the private airplane," Harting said, "than almost any man-made object since the indoor toilet was invented."

DEALER NEWS

Nearly 100 Aeronca distributors attended a two-day sales meeting at the Cleveland Hotel during the National Aircraft Show. Sales representatives, from every state in the Union and Canada, were shown the new Aeronca Chum and discussed sales problems and other pertinent matters at meetings under the chairmanship of Lee Smith and R. L. Davison, Aeronca executives.

Six hundred Piper Cubs have been shipped to foreign countries since V-J day and Piper has export orders for 1,512 additional planes, W. B. St. John, general sales manager, revealed on his return from a six weeks' trip through South America. Although South America is years behind the U. S. in development of private flying, St. John said enthusiasm and need for personal planes is even greater than in the United States. On his visit to eight countries, the official received 450 orders for Piper planes.

New management took over Southern Air Services, Memphis sales and service organization, on December 1. President in the new management setup is Cy Shobe of Shobe, Inc., partner in the organization and an experienced merchandiser and World War II Navy pilot. Claude J. Wood, also a partner and sales manager of Southern Air Services for many years, is vice president and sales manager. J. F. Lanier, who has been with the company for 10 years, Lloyd C. Christie, flight director, and L. A. Maddox, service manager, have retired. Southern Air Services is distributor in the mid-South for Piper, Beech, and Republic Aircraft, for Bendix radios, and for Franklin, Continental, and Lycoming engines and parts, Esso aviation fuels, and Firestone aviation supplies. The serv-

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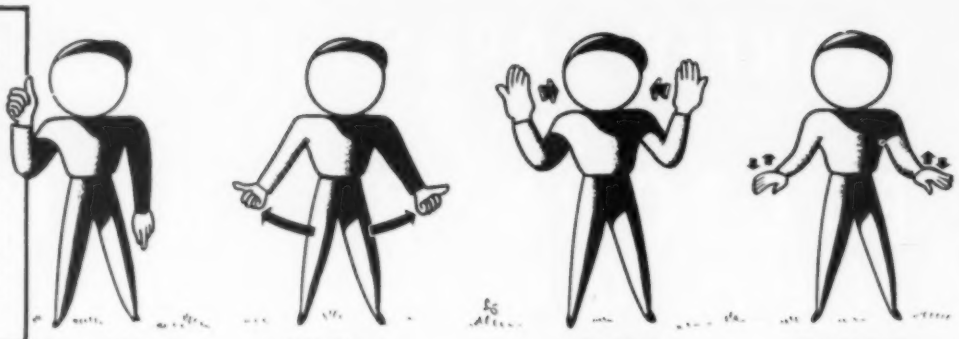
HAND SIGNALS FOR TAXIING, shown on these two pages, are from "Standard Operating Procedure for Friendly Service," a booklet prepared by Socony-Vacuum Oil Company, Inc., for distribution among operators and dealers at airports wherever the company's aviation products are for sale. Chief aim of the booklet is to help dealers provide friendly service equal to that motorists get at filling stations.



ALL CLEAR (O. K.) PULL CHOCKS COME AHEAD SLOW DOWN

ice owns and operates Sanders Field near Wells, and service facilities.

Float performance that ranks well above average was turned in by a Stinson Voyager 150 during preliminary CAA flight tests at Long Lake, Maine. Rated at a maximum gross weight of 2,235 pounds when equipped with Edo Model 2425 float gear, in comparison to 2,150 pounds as a landplane, the Voyager climbed at 400 fpm. —100 feet above the mandatory figure. Under calm conditions, the Stinson got off in less than a minute, attained a top speed of 118 mph., and a cruise speed of 108 mph.

Latest plane to list the Stromberg injection carburetor as standard equipment is the Beech Model 35 Bonanza, four-place personal plane powered by a 165-hp. engine. Differing from previous carburetors of the same size and power range, the Stromberg P. S. series injection carburetors eliminate the vented flow chambers and use a fuel feed system closed and under pressure from fuel pump to discharge nozzle. A load-compensating design modulates the fuel feed for full throttle, cruising or idling operations. The manufacturer claims chief advantages are non-icing characteristics and freedom from gravity in dives, climbs and banks.

All deliveries of Stinson Voyagers, both domestic and foreign, are now fly-away-factory, according to Wm. H. Klenke, Jr., general sales manager for the Stinson division. This change in method of handling the planes for export was adopted in the interest of efficiency and economy, Klenke said. Voyagers which are being shipped overseas are flown to New York or West Coast ports for crating, instead of having them boxed at the factory. Export deliveries to Mexico, Alaska, and Canada are flown all the way from the factory to their destination.

The CAA's new system of airplane registration, which went into effect in mid-November, permits an airplane purchaser to write his own 60-day registration certification and also allows use of "dealer's tags" on new airplanes. Under the new arrangement which the CAA claims makes registering an airplane easier than an automobile, the new owner fills out a three-part form, posts one part in his plane as a temporary certificate, keeps the second part as his own protection, and mails the third section with a five-dollar bill to the CAA's Washington office. The owner can then fly his plane for 60 days on the authority of his temporary certificate and, before the time limit is exhausted, will receive a permanent certificate. Dealer tags cost five dollars, may be used for ferrying and demonstrating, and are good for 12 months.

A 19,200 sq. ft. private aircraft hangar has been opened by Atlantic Aviation Corporation at the terminal in Teterboro, N. J. In addition to providing facilities for maintenance and overhaul on private aircraft, the new hangar will house executive and general offices of Atlantic Aviation. The hangar has a large stock room for parts, a radio bench testing room, an electrically insulated screen room, a machine shop, and reception and conference rooms for use by visiting fliers.

The Atlas Sky Merchant, a plane equipped to accommodate full-scale promotion and training meetings for aviation product dealers, will tour 800 towns in the United States and Canada. The plane has a motion picture projector complete with sound equipment and a movie screen which can be rolled into the ceiling when not in use. Sponsored by the Atlas Company, producers of automotive and aviation accessories, the Sky Merchant will show proper methods for merchandising aviation products.

Scott Aviation Corporation of Lancaster, N. Y., has announced appointment of four regional sales managers to serve Scott distributors, dealers, and aircraft owners. William G. Eckman will manage Atlantic Coast territory; Allan Cameron was appointed to Region 2; W. D. Gilmour to Region 3, and W. J. Zepp to Scott's Western territory.

The MET-L-PROP, all-metal propeller manufactured for personal planes by the McCauley Corporation of Dayton, O., is now available for Continental 65, 75, and 85 horsepower engines. The factory will furnish a descriptive folder to plane owners and dealers on request.

WHAT'S NEW

While recent setbacks have indicated that the market is near a "saturation point", not all manufacturers are wearing long faces and some dealers feel very lucky when they accept delivery on a new plane. Top prize at Piper's recent Dealer Day in Cleveland was on-the-spot delivery of a new Super Cruiser, which went to the dealer who came farthest to attend the meetings. Numbers drawn from a hat decided which dealer got a second Cruiser. Piper's 7,472 back-log of Super Cruiser orders probably explains everything.

The float business isn't bad either, if we may use Roy Hubert of Vancouver, Wash., as an example. Hubert distributes private planes and parts in the Pacific Northwest and he recently needed aircraft floats badly to fill urgent orders. A trucking strike kept the floats tied up at the Edo Aircraft Corporation plant. Hubert dispatched his brother, Bill, in a lightweight truck trailer and Bill reached the New York factory in six days. There he loaded the floats, already crated for rail shipment, and was on his way back to Seattle the same day.

The nation's cheapest civilian flight time is probably being logged at Lock Haven, Pa., where employe members of the Cub Fliers pay the Piper Corporation $2 an hour dual or solo rates. The present program was instituted some thirteen years ago at the company's original plant at Bradford, Pa., and was organized on the theory that if workers can fly the planes they build they will take more interest in their jobs. Today 400 employes fly Piper aircraft and pay only bare costs of gasoline, oil and insurance.

The first group of ex-GI's to finish the 42-week Veterans Administration approved airplane and airplane mechanics school graduated December 20 from the Brayton Flying School at Lambert Field, St. Louis, Mo. The graduates have been assisted in securing positions with the airlines and in airports through the school's employment service. New students are being accepted every five weeks and over 200 students are enrolled at the present time.

A map holder that holds a map flat, adjusts to any desired position, and when not in use folds under the instrument panel has been invented by Daniel J. Colokathis, senior aeronautical engineering student at Parks College of Aeronautical Technology, St. Louis University. Called the "Colomap holder," the device presents an easily read portion of a map, enough for half a day's flight in a personal plane and, by simply turning over the holder, the next half day's portion of the map is ready for use. The holder will be placed on the market this Spring.

A sixteen-page brochure on "Hy-Mac" aircraft testing equipment has been released by Hydraulic Machinery, Inc., of Dearborn, Mich., manufacturers of testing equipment for various types of tubing, valves, cylinders, pumps, gauges, and propellers. A typical test stand shown in the brochure is the Model T-133, propeller hub.

Slick Airways engineers, who last summer were the first to develop air conditioning of plane cargo cabins through fibreglas insulation and dry ice cooling plants, have perfected a highly-efficient heating system for cargo protection. Thermostatic controls on the instrument panel permit Slick captains to keep cabin temperatures at any desired point. Although the system is automatic, two panel indicators keep the captain posted on temperature at strategically-located spots back in the cargo cabin.

Life of dry cell batteries is extended from five to ten times by a recharging device on a new portable multi-purpose ac/dc receiver developed by the Electronic Specialty Company of Los Angeles. Known as the Ranger Model 118, the set has a "batt-charge" switch which permits recharging while the receiver is in operation on 110-volt ac or dc current.

Just how noisy is the cockpit of the plane you sell or own? Until recently, that has been a matter of conjecture, for heavy sound metering equipment has been impractical for use in small personal planes. Now, however, the Aircraft Industries Association has developed a compact, lightweight sound level meter that can be carried easily by one man during normal operation of any airplane. Preliminary design for the instrument was prepared by H. L. Ericson, Douglas acoustical engineer.

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JH5F
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SF14LU-8
SF14LC-7
SF14LC-8
SF9LU-3
SF9LU-7
SF9LU-8

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PD-12H2, PD-12K6
PT-13G1, PT-13G5
1900-CPB-3

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TFD-8200
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D-13382, 744-4
D-7818

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MG-149F, MG-153
MG-149H, MG-153F

PROPELLERS
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23E50-473/6353-18

PROP. GOVERNORS
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4K11-G1J, 4G8-G-13
4K11-G0J, 4K11-G0L

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Clifford C. Brownfield has established his own business in Dallas, 4309 Oak Lawn Avenue, as an engineering and sales representative specializing in aeronautics. He represents Arens Control, Inc., and Frank Instrument Co. for the territory of Kansas, Oklahoma, Texas, Louisiana and Arkansas. In aviation 18 years, he has been connected with Curtiss Wright Flying Service, Air Associates, Inc., Lockheed Aircraft, and Burklyn Company.

BRIEFLY SPEAKING—

When radio showmen, Tom Brenneman and Norman Nesbitt, learned paralyzed veterans at Birmingham General Hospital wanted a two-control plane, they passed the word along to the public. Donations paid for an Ercoupe and the West Coast branch of Bendix Radio presented the veterans with a complete radio installation for their plane. What's more Bendix representative, V. L. Bolin, said his company would convert the set when new frequencies go into effect next year. . . . That blue-grass of Kentucky is good for more than just feeding horses. Frank H. Dreher recently made his second grass-assisted airport take-off in a floatplane when he delivered an Edo-equipped Cub from Bowman Field, Louisville, Ky., to a floatplane base on the Ohio River. Fire trucks sprayed the grass and Dreher slid his Cub along the wet turf until it became airborne. . . . First airplane sold at the Cleveland National Aircraft Show was a new Voyager 150, which went to Wilbur Shaw, veteran pilot and auto racer. . . . The Mayor of Cleveland, Ohio, was appropriately commended for his farsightedness during the recent aircraft show. Seven personal planes, representing as many manufacturers, landed on the site of Cleveland's future 2,500-ft. downtown lakefront air strip, taxied three blocks to the City Hall, and complimented the Mayor and city for an excellent airpark plan. The air strip will be completed this spring and, when in operation, will permit private pilots to land within walking distance of the business district. . . . Counting ducks was simplified this fall by the Connecticut Board of Fisheries and Game. Using a plane, the census takers flew low, scared the ducks into the air, then noted species and made a rough approximation of numbers. . . . An Ercoupe was flown to a height of 18,300 ft. recently by Walter Korff and Francis Gebby, Lockheed employes. . . . Southwest Airmotive Company of Dallas was recently appointed a distributor for Hamilton Standard propellers. ★ ★ ★

THE SKY'S THE LIMIT

(Continued from page 38)

not work at all. Upon putting this thing in the shop, we acquired a bill for $370 on little details that had nothing to do with the structure of the airplane or the operation of the engine. As mentioned above, we had a magneto checked and re-adjusted and that cost $55. There are too many expenses for the average person to be able to operate an aircraft and this is due, in part, to faulty supervision and poor quality of work and to poor personnel.

We don't know the answer to many of these things. But we have repeatedly encountered personnel that had no familiarity with a standard type airplane and had to do a lot of learning at our expense. We have time and again observed faulty work that had to be done over, being charged for both the time it was done poorly and the time it was done over.

We have observed this in other businesses besides the airplane business. All these people who expect to be paid day after day, whether they do any useful or satisfactory work or not, are wrong. Sooner or later, we are going to have to go back to the point where we pay only for the work that we get done satisfactorily and we fire the people who are unable or unwilling to do satisfactory work. Three-fourths of this goes right back to management. Any business can, if it wants to, do better work for less money and still make the same profit. Too many places of business are improperly organized and have payrolls cluttered with incompetent people.

Sooner or later, in each community some company is going to grow up and get all the business. Anybody who cannot do a good job for a reasonable price is going to have to be ruled out of the picture. If private aviation is to have the expansion that everyone desires, repair facilities are going to have to do a good job at a reasonable price every time.

The other day a mechanic who was working on our airplane found all the nuts and bolts in a certain section without safety of any kind. This represents lousy work that is both dangerous and unsatisfactory. Many accidents in both civil and commercial aviation are probably due to the incompleteness and incompetence of the work and workmen involved.

We know that good work can be done. In fact, very excellent work can be done with comparatively little equipment—if mechanics have the desire to do good work and to be careful. We think the CAA may be letting itself in for a lot of headaches with its new program of permitting certain mechanics to be their own inspectors. In our business, we have found that the average person is satisfied with his own work and it is only when you get other uninterested inspectors that you really find all the bugs in it.

It is pretty poor economy on the part of the government to whittle the CAA down to the point that it has to deputize every Tom, Dick and Harry to do its work free. We think that it is an especially ineffective saving when the aircraft owners have to pay a lot more to get the job done over.

We hate to gripe all the time about these things, but anybody who uses an airplane finds promptly that the spending money he used to have is no longer in evidence. Airplanes and mechanics will get every doggoned cent of it and more. The unfortunate result is that too many people do not properly maintain their equipment.

★ ★ ★

MISSION ACCOMPLISHED: Ready to start back to Wichita after a hunting trip on the Diamond Bar Ranch near Kerrville, Texas, Walter Beech (right) and his party display their game. Left to right, pilot Joe Boyle, Mr. and Mrs. B. Frank Krehbiel, Mrs. Beech, and the Beech Aircraft Corporation president. They were guests of Hal Peterson during their stay in Kerrville.

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VISIBILITY LIMITED

(Continued from page 23)

Up at 3,000 I kept an eye on the shiny hangar roof. Visibility was not improving. At 4,000 feet it was still all gray and I had somehow lost sight of the hangar. "You're on your own now," I thought and turned to the 120° heading and clicked the chronograph. Although I could maintain attitude by reference to the ground, this was not my concept of contact flight.

I tuned in the LaGuardia range and checked the chart for my course, which was just to the right of the incoming beam. After about eight minutes there appeared ahead, at about the normal glide angle, the top of the Empire State Building, sticking through an opaque layer of smoke. I might have had about four miles of horizontal visibility all the time, but this was the first I could be sure of it.

A couple of minutes later the dim form of Long Island appeared to my right like a photograph in the developing solution. The visibility had increased to ten or twelve miles. I gradually relaxed, cut power and made a leisurely let-down with all the aplomb of an airline pilot.

Suggestions for Marginal Weather

Several considerations came to mind as a result of this little episode.

First, let's not be too critical of the CAA weather minimums. Sometimes they seemed rather severe for Cubs circling in the traffic pattern around a small airport, but when higher cross-country speeds are involved they are plenty liberal.

Don't let sunshine fool you into believing that it is synonymous with easy flying. When haze or smoke is around, it just doesn't work that way. It's much easier to look up through haze than down through it. The sun reflecting from the particles causes a glare which greatly reduces effective visibility. Furthermore, this damp smoke may be in strata or layers which are relatively easy to see through vertically but which are virtually opaque when looking through them horizontally. If any smokiness at all is detectable when looking up at a plane from the ground, you may be sure it's really bad in the air.

Lastly, and most important, if you intend to fly this marginal visibility weather, attention to instruments is essential—unless you believe longevity is hereditary. Altitude should be watched closely to be sure the airways are crossed between the thousand-foot traffic layers. In such weather those airliners are on instruments and are not looking too closely for traffic, except near airports. They pop up on you mighty quickly in one to three-mile visibilty, and there is little formality about right-of-way on such occasions. Point to point navigation must lean heavily on dead reckoning so a reliable air speed indicator, a compensated compass with recent deviation card and an elapsed time clock are in good taste. Even in a cabin ship, outside air temperature is nice to know for predicting carburetor ice as well as for true air speed calculations. A 200-400-kc. receiver will open the invisible highways of the air to you if you can sort A's from N's. Even if you haven't qualified for an instrument rating, a radio provides more check points than you'll ever see in minimum weather.

Finally, always start out in semi-contact weather with ample fuel. As one Eastern Air Line captain puts it, "Most of your meteorology is in the gas tank." ★ ★ ★

FLYING THE DELUXE LUSCOMBE

(Continued from page 17)

speed for the round trip was 110 mph. and fuel consumption average 6.2 gallons an hour.

Critically Speaking

There's nothing like a cross-country flight to bring out an airplane's good and bad points. During our six hours in the Silvaire we landed on fields ranging from hard surfaces to sloppy turf and improvised runways. Wheel pants, we learned, are for glamour only. We flew the Silvaire under wind conditions that varied from a limp wind sock to a 30-mph. surface wind. A steerable tail-wheel aids handling the 1,400-lb. gross plane in strong winds and the nicely-designed nose cowl affords good forward visibility.

In flight the Luscombe handles nicely at all speeds with no vicious characteristics. In stalls it mushes evenly up to the stall point and then shows no tendency to whip over. Stalling speed with power off and wings level averaged about 53 mph. indicated and, in turns, the Silvaire unloaded at around 60 mph. These stable flight characteristics plus cockpit simplicity make the Silvaire a remarkably easy plane to fly. The average lightplane pilot, with a small amount of solo experience, should have little trouble in a Luscombe 85.

Don't expect the deluxe Luscombe to offer any radical improvements—it wasn't intended to do that. It is a Park Avenue version of the well-known 65-hp. Silvaire with more power up front, roomier cabin, an all-metal wing and wing tanks. You'll find its roomy baggage compartment made difficult to reach by the seat-backs. While soundproofing and fittings make the cabin more comfortable, what to do with your feet when the other fellow is flying is still a problem. Rudder pedals that disengage would be a great aid to comfort for long legs.

Most of all we missed a radio—which the $3,795 price does not buy. A radio puts a wealth of weather information and navigational aids at your finger tips. Going cross-country without one is to take the long way around.

With the 85, Luscombe has extended the Silvaire's utility beyond trainer purposes—the new Silvaire is a plane you can use to go places in at 110 mph. or better in comfort. It represents considerable thought and expense to meet a suddenly particular two-place market demanding more than mere trainers for airport flying. ★ ★ ★

FLIGHT-TESTING OF NEW MARTIN 202 was initiated in Maryland last month while eight production 202's neared final assembly even before the prototype was NC'ed. First deliveries of the 36-to-40-passenger craft will go to Pennsylvania Central Airlines. The Glenn L. Martin Co. said no difficulties were encountered in early test flights and performance "exceeded all expectations."

—(Glenn L. Martin Co. Photo.)

MEXICO

(Continued from page 13)

things 24 hours of the day. This same close watch is extended to the private flier. At the expense of the private pilot (it amounted to not more than 5 or 6 dollars during the entire trip), telegrams are sent immediately upon arrival at any airport. One goes back to the last point of take-off to let them know your plane has landed at its point of destination. Just prior to take-off, a telegram is sent to the point of destination informing them of the plane's departure and giving an estimated time of arrival. This procedure is a must with the Mexican government. It affords the private pilot a feeling of considerable security between airports.

Most of the cabs in Tuxpan are ancient but the price is reasonable and the service is dependable. Our first night was spent in the Hotel Reforma, an ancient, patioed structure with iron bedsteads.

One of the U. S. Army's famous DDT squirt bombs is a good thing to take along on a trip like this. We could have used one in this town because the mosquitoes became pretty friendly on several occasions.

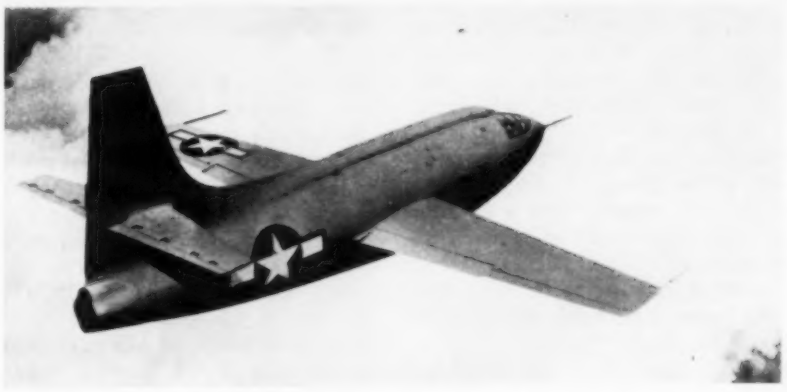
Soon after coming in to Tuxpan, low clouds started accumulating. The following morning a slow drizzle was falling, an introduction of what we were to contend with for the next two days.

Part of the stay was spent seeing the town a half dozen times by foot, up one street and down the next. There were only two such streets to see. One was the main drag, the other a semi-back alley. The air-tourist who flies this route without one piece of all-round heavy-duty fishing tackle will regret it on many occasions. From Tuxpan down the river to the gulf is a distance of only three miles. Lagoons extend from each side of the river at its mouth and fishing is superb.

Over the Hump—and Lost

On the third morning the hourly radio weather report gave favorable conditions with the sky clear at Mexico City. The flight from Tuxpan to Mexico City was estimated at around 90 minutes. Our flight path led from sea level to an altitude of 11,000 feet, so immediately after taking off we climbed right up into scattered clouds at 2,000. Since the weather report ahead had been clear skies, the plane was kept on its compass heading even though cloud formations became solid far below. We had 9,000 feet in 30 minutes.

Suspense in that small cabin began to mount by the second. Far off to the left a black peak loomed up above the



SUPERSONIC CHALLENGER

THE Army Air Forces has begun at Muroc, Calif., a systematic series of flight designed to eventually crack the supersonic barrier with the Bell XS-1, a rocket-propelled airplane originally designed to fly at a top speed of 1,700 mph. and at an altitude of 80,000 feet.

Literally a flying laboratory, the XS-1 is released at altitude by a B-29 before using its own rocket power. Plans are to gradually accelerate power on successive flights, using at first only portions of the rocket engine's 6,000-pound total thrust. Power output is controlled by selection of the number of cylinders to be fired at one time and the pilot can use 3,000, 4,500, or 6,000 pounds of thrust. This first model of the XS-1 will not be capable of attaining the 1,700 mph. speed for which it was designed because an alternate power plant will have to be used during initial tests. However, the alternate system is expected to produce an estimated top speed of 1,000 mph. at 60,000 feet and a 28,000 feet per minute rate of climb.

Pilot of the XS-1 during its first powered flights will be Chalmers (Slick) Goodlin, twenty-three-year-old Bell Aircraft test pilot. Goodlin's schedule, according to Bell Aircraft's contracts, calls for demonstration of the following minimum performance requirements: An 8 "g" pullout at an indicated air speed not exceeding 500 mph.; an 8 "g" pullout at minimum speed; and a proof of endurance at rated thrust and take-off and climb to 35,000 feet under its own power. Finally, the XS-1 must respond satisfactorily to controls at a speed of Mach number .8. (The Mach number, named after German scientist Ernst Mach, is used in designating speeds relative to the speed of sound. Mach number 1 is the speed of sound at any altitude and, consequently, Mach .8 means 80 per cent of the speed of sound at any altitude). ★ ★ ★

Bell XS-1 (below) has a wing span of only 28 feet, is 21 feet long, and measures 10 ft. 10 in. from ground to tail top. Fully loaded, the chunky XS-1 grosses 13,069 pounds and has a range of little more than 100 miles. Windshield shown here is temporary design and has been replaced.

clouds. No prospect of a break in the under layer was visible. We knew mountainous country was everywhere under the clouds. In about 15 minutes, we made the old 180-degree turn, and taking a look at the watch, we started back to Tuxpan.

When we got back to the scattered clouds we let down. I suddenly saw that we were exactly over a landing strip. The strip itself wasn't as distinguishable as a plane that was parked near a small building at one end. But for the latter, I probably would have thought the place a mirage.

Keeping close over the field we spiraled down, being careful to keep the old carburetor heater pulled full out and clearing the engine every few seconds. There was hardly 200 feet to spare between the cloud base and tops of the foot hills.

A little side-slip placed us in good landing position and we settled into the weeds. The usual cows were grazing about the airport but fortunately most of them were located to one side of our landing run.

No such air strip was charted within a hundred miles according to maps I had seen. Naturally my first question was: Como se llama este pueblo? (What is the name of this town?).

Poza Rica, I was told.

I was also informed Tuxpan was northeast. The old bugaboo, winddrift, had taken us a little farther east than anticipated. Now that we knew where we were, we took off and headed straight northeast. The Tuxpan River was dead ahead flowing directly east into the gulf and we followed it to the airport. After a quick refuel, we headed straight south. We'd had enough of that mountain flying.

Flying down the coast was never sweeter. Mesquite, chapparral, catclaw, huajillo, huisache and prickly pear composed most of the growth along the area between the beach and forest. The latter was niched in places by well cultivated banana plantations and native fishing villages passed under us frequently. About midway to Veracruz is Las Casitas, at the mouth of the Rio Nautla.

Five or six miles from Veracruz is the town's airport, a modern, well paved landing field. It is located due west of the city on the main highway to Orizaba, Puebla and Mexico City.

There are undoubtedly many good hotels in Veracruz. The place we like is Villa del Mar. Consisting of individual cottages spotted over several acres with a central plaza as a core, our two-day stay here will long be remembered as one of the most pleasant of our lives anywhere in the Americas.

Unspoiled by an influx of tourist travel like Mexico City and surrounding towns, Veracruz is a heaven for the souvenir collector. The town is saturated with every make of watches and the prices on expensive makes run about one-third less than in the States. Food and lodging and most other items are very low-priced. Everyday essentials for two cost about $6 in American money. According to the written record, our expenses in Veracruz amounted to: taxi fares, 19 pesos; food, 80 pesos (six meals); miscellaneous, 5 pesos; 1 Longines semi-chronograph, $65 American; and room, 40 pesos (2 nights).

Best Approach to Mexico City

We left Veracruz 374 years after Herman Cortez struck out for the Aztec capital, the "city of gold." The smooth coast route had been all a lightplane pilot could want and every mile of the more than 500 from Brownsville was a real flying pleasure. From Veracruz we shipped all our luggage, which amounted to around 55 pounds, to Mexico City by CMA plane to lighten the Luscombe.

To fair weather pilots, Orizaba's old rugged mountain of barren rock is a good landmark to keep on the right of the course as the plane levels out at 6,000 feet to give a short rest to the engine and follow the valley up to Puebla. As Puebla is approached the valley becomes narrower. After a fifteen minute period of level flight, the plane was climbed until 11,000 feet was reached.

Two possible routes are open to the light airplane from this valley into Mexico City. One is from Puebla south around the volcanoes, Popo and Sleeping Lady, and then north into Mexico City. The other bends north before reaching Puebla. We took the latter. The main highway and railroad can be seen to fork about midway up the valley from Orizaba to Puebla. A high mountain knob projects out about a third of the way into the lowlands and appears like a wedge between the road that continues up to Puebla and the one that bends northeast.

If the right-hand route is taken, it is easy to recognize by following the highway that S-turns up and along a humpback in a ridge bordering the valley. On the day we passed from the high valley onto the even higher table land, the wind was stirring up trouble. Thunder clouds were observed here and there out in the distant mountains. Once on the plateau, we got the railroad right under the plane, and knowing there were no tunnels, felt we were safe as long as we could keep a mile or two of visibility in spite of rain that was bearing down on us from our left. We will long remember the plateau's clouds of dust during one fifteen minute period and sheets of rain during the next quarter hour. A high peak to our left seemed to be peppered with air vents in its long tapering base, where streaks of dust spread out and upward to blend into the general dusty atmosphere. And just the other side of the dust could be seen a dark cloud mass with a gray rain tieing it to the ground.

But for the railroad under us, we would have doubted the accuracy of the plane's compass on several occasions. Dozens of towns up this valley look just alike from the air. Most of the time we were unable to plot our progress over the ground because of

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this situation. The core of each is the ubiquitous snow-white cathedral. Many convents spot the surrounding countryside. These, along with highway construction oddities, the railroad and topographical landmarks, should be mapped for the benefit of fliers.

Unless a stop for refueling is made at Orizaba, lightplane pilots flying this route are urged not to take a chance on getting on into Mexico City with a 14-gal. capacity. We took the chance more from ignorance than risk. A few stronger headwinds would have forced us to land on a highway or smooth field along the plateau into the capital. After landing at our ultimate goal, the plane's tank took 12 gallons.

When coming in for my landing at Mexico City, the tower flashed me a red light. No other planes were taking off or coming in for a landing. Nevertheless, I gave it the gun and at 100 feet noticed another large field just across the road at the end of the runway. Being low on gasoline and not knowing but what the other field was just as good a place to land at as the one I was over, I cut the throttle and went into a landing glide for the new field.

As I taxied to a building several young soldiers came out to meet me. Tired and weary from the three hour flight, my small knowledge of Spanish disappeared. Roaring laughter greeted my explanations. I felt like I was a success with these young soldiers and this later proved to be true when they talked their superiors into giving me, without a centavo of charge, five gallons of gasoline. He who writes breath-taking chapters on the rough and rude treatment by Mexican soldiers of American pilots forced "out-of-bounds" by an emergency is making a thriller-diller out of hot air.

With more than $3,000,000 being invested by a private concern in the future of aviation at Mexico City, the flier need have no worries about maintenance and overhaul of his craft if needed. Already five enormous hangars have been built. The company's facilities are managed by Darrell D. Shenkel. Hangar rent for a night, which includes towing charges to and from the administration building, is $1.50. A 10-hour check on a 65-hp. engine costs $6.00—all sparkplugs cleaned, gas line cleaned, magneto checked and readjusted and an oil change. Shenkel's entire staff is uniformed in yellow and red and the company's equipment is marked by the same colors.

The pilot's biggest expense is taxi fares. From the airport to town, the cost is 4 pesos. The constant use of taxis while getting to the sights around the city amounted to 53 pesos during our three-day stay. Good hotels, when available, stick the customer around 30 to 50 pesos per night for a double room.

FOUR-WHEEL TRUCKS on Lockheed Constitution, pre-rotated for landings by electric motors, are of same type being installed on Convair's 6-engine B-36 at Fort Worth. They replace giant 110-in. single wheels on the big pusher bomber, saving 2,600 lbs. in weight per plane.
—(Lockheed Photo)

Loaded with the usual pile of souvenirs, our departure from this ancient Aztec Capital was made in haste. For the first time in many months, I found out by telegram that my job was needing me.

In order to get an unbiased opinion of both routes from the coast into Mexico City, I decided to try the mountains to Tuxpan. The mountains going out on this route, unlike those passed over coming in, drop down to the tableland in a rugged, precipitous manner. They then taper off to foot hills and lowlands as the coastal area is reached. The weather was clear with visibility unlimited.

The two-hour flight was lacking in thrills. Nevertheless, the feeling of being over flat coast line and a good landing place just about anywhere we chose, was great to experience.

A quick hello at Tuxpan and the plane took to the flight path for Tampico where our enterprising airport manager at the cowpasture field sent his galloping steed out to herd the cattle while we dodged a landing.

Full of 73 octane again we were off with the minimum of time lost. Our goal for the night was Brownsville and the sooner reached the longer we had to enjoy the hospitality and the comforts of our friend's home. Then, too, there was that Monday 4 p. m. deadline to get back on the job.

★ ★ ★

THE LONG WAY

(Continued from page 15)

ing a still-air speed of a little more than 100 miles an hour, I had used perhaps fifteen additional gallons of fuel. At the outside that would come to $4.50. Add a pint of oil, a $3.00 hotel room, $1.00 extra for hangaring my plane and $4.00 for an added day's rations, and my sins against the CAA system of straight-line navigation were assessed against me in the sum of $11.65.

It had been worth it.

When I collected the Luscombe and stowed my luggage aboard, the man at the factory said, "The compass hasn't been compensated."

A week before I would have refused flatly to take the airplane off the ground. Now I was emancipated.

"It's okay," I said. "All I want to know is, will the airplane follow railroads?"

On the way back East I fitted in the missing part of highway-and-railroad navigation. It was highway and railroad markings. Too much emphasis, it seems to me, has been devoted to a campaign to get American communities to label themselves so that an itinerant flier can identify them from the air. Few communities co-operate. For every town that is marked, there are a hundred unmarked.

Would it not be more logical to mark something on the ground which is a line-of-position? Railroads and major highways are lines-of-position, just as a single star sight is a line-of-position to a man with a sextant. If I know a railroad is the Illinois Central or the Texas & Pacific, my problem of finding myself above an expanse of unintelligible terrain is half-solved. If, to that intelligence, is added the distance and magnetic heading to the nearest airport, the solution is complete.

Putting indentification marks, easily read from the air, on railroads and major highways at 20-mile intervals throughout the United States would increase the life expectancy of lightplane pilots who fly without radio.

Accompanying this article are some illustrations suggesting ideas for marking railroads and highways and even rivers. If the federal government can afford to build and maintain a radio range system, it ought to be able to afford some signs. A private flier doesn't ask much. All he wants is an answer to the question, "Where am I?"

I delivered the Silvaire to Annapolis, Md.

"I'm late," I said. "Did you get worried?"

"No," was the answer. "We thought you'd met some weather."

I didn't bother to explain that I had come the long way 'round. ★ ★ ★

Industry Finds Lightplane Forecast "Impossible" for 1947; 35,000 Personal Planes, 1,850 Other types, Built Last Year

Forecasting lightplane production for 1947 is "virtually impossible," the Aircraft Industries Association said in a year-end report, which summarized the personal planes outlook as follows:

"Given a favorable business atmosphere; assuming a flow of materials for planes and for landing fields and hangars; adequate salesmanship and production sufficient to keep costs low, then personal planes sales in 1947 will at least equal those of 1946. Any unbalance in these factors will result in a lower number volume, although the dollar value will probably remain high because of the swing to higher-priced 2- and 4-place, all-metal family and business type planes."

The AIA reported 1946 production of 36,850 planes, as follows: 35,000 personal planes, 1,400 military planes and 450 transports with a total value, including experimental projects, of approximately one billion dollars.

Referring to personal planes, the report said the "measure of 1947 production in the personal plane field will largely be that of salesmanship."

Lightplane Event, with $25,000 Prizes, Added to National Air Races

Addition of a lightplane event to the Cleveland National Air Races, requested by National Air Races management and Professional Race Pilots Association, has been announced. Twenty-five thousand dollars in prizes will be offered by Goodyear Tire and Rubber Co.

The lightplane race, to be conducted on Labor Day, 1947, will include elimination trials to cut the field from twenty-four entrants to twelve and a semi-final event to eliminate six more. The final event will be fifteen laps over a five-mile course. Engines of craft entered cannot exceed 190 cubic inches in displacement, the ships must carry an Approved Type Certificate issued by CAA and cannot be altered except with manufacturer's approval. Parachutes, safety belts, shoulder straps and crash helmets are compulsory; non-retractable landing gears and nose-over protective construction are required. Pilots must have a minimum of 200 solo hours, plus 10 certified hours in the ship they race for every 100 hours short of 500 solo hours.

Al Williams Leads 2,000 Lightplanes to Florida

Led by Major Al Williams and his Gulfhawk Grumman fighter, thirteen airplanes of the Gulf Oil Company's fleet were scheduled to participate in the 6th Annual Gulf Air Tour to Florida, January 2 to 26. Eight Stinsons, a Beechcraft, a Lockheed 12, a Lockheed Lodestar and a Douglas DC-3 were included in the fleet of company planes whose pilots and passengers were observers during the tour, participated in by some 2,000 private planes of less than 125 hp.

Pawley Heads Reunion of Old-Timers at Miami

The proposed reunion of "old-timers" at the 15th Annual Miami All American Air Maneuvers January 10-12 was to be headed by William D. Pawley, U. S. ambassador to Brazil, who was one of the originators of the Miami Air Maneuvers in 1929 and one of the organizers of the Greater Miami Airport Association, the sponsoring organization.

AIRPORT PAY-OFF for private fliers, initiated at several airports in recent months, is illustrated by this news photo showing a traffic cop writing a ticket for "illegal parking" of a BT on Municipal Airport in Atlanta, Ga. Visiting planes are charged a fee for parking on a designated ramp, but this BT owner parked elsewhere. The incident developed a tragic note that night when the BT owner, visiting Atlanta, lost his life in the Winecoff Hotel fire.
—(Jack Young Photo.)

500 Expected at Third Annual 4th Region Operators Meet

The Third Annual Meeting of non-scheduled operators in the states of Arkansas, Texas, Oklahoma, Louisiana and New Mexico, comprising the CAA Fourth Region, will be held at Hotel Texas, Fort Worth, Texas, January 13, 14 and 15. Sponsored jointly by the Civil Aeronautics Administration, the National Aviation Trades Association and SOUTHERN FLIGHT magazine, the affair in past years has been one of the largest regional aviation conferences ever held by one specific branch of the industry. Registration for the 1947 meeting is expected to reach more than 500 operators, CAA employes and affiliated industry representatives. Both CAA Administrator T. P. Wright and Harry Meixell, executive director of the National Aviation Trades Association, are making plans to attend and address the group.

The Fourth Region Conference has received national attention and interest, largely through the unique method of programming. No "canned" speeches are permitted and about 90 per cent of the entire program consists of spontaneous discussions and debates on the floor from an organized list of subjects suggested in advance by the majority of the registrants.

William M. (Bill) Berry, CAA Fourth Region Personal Flying Development specialist, is general chairman of the annual event. Advance registrations and a list of subjects desired for discussion should be addressed to him at P. O. Box 1689, c/o CAA, Fort Worth.

Wright Lecturer Says Swept Wings, New Power Plants Can Break "Barrier"

New propulsion devices have been developed with sufficient thrust power for supersonic speed and new design concepts, including swept wings, have been evolved to reduce drag and avoid "shock waves," thus disproving the widespread belief that crashing the compressibility barrier of sonic speed is impossible. Thus spoke Dr. Th. von Karman, director of the Daniel Guggenheim School of Aeronautics at the California Institute of Technology and scientific adviser to the AAF, in last month's tenth annual Wright Brothers Lecture before the Institute of Aeronautical Sciences.

Dr. von Karman said studies have divided high speed drag into "wave" drag and "induced" drag and that wave drag is the one that proves most troublesome in supersonic speeds. Sweeping back the wing's leading edge has been proved as a means of greatly reducing the wave drag. Thus the overall lift over drag ratio can be increased to a value comparable with highly efficient subsonic wings. This, then, opens the door to supersonic flight, for which new propulsive devices have developed sufficient thrust power.

Nebraska Educator Given Brewer Trophy

Nebraska has received national recognition for its program of aviation education due to the efforts of Dr. F. E. Sorenson who has recently been awarded by NAA the 1946 Frank G. Brewer trophy for "the most outstanding contribution to the development of air youth in the field of education and training."

Based on studies to determine just what knowledge teachers must have to effectively instruct pupils at all levels of education in aviation, the Nebraskan's plan of education emphasizes teacher training and curriculum development and makes extensive use of airports, aircraft, model building, flying equipment and the Link trainer.

GCA Developer Receives Collier Trophy for 1946

The nation's highest aviation award, the Robert J. Collier Trophy, has been awarded Dr. Luis W. Alvarez, a 35-year-old University of California physics professor who is an amateur pilot. The award was made officially by President Truman on the forty-third anniversary of the Wright Brothers flight.

One of the American scientists who deal with atom bombs and advanced radar, Dr. Alvarez was cited "for his conspicuous and outstanding initiative in the concept of, and his contribution to the construction, adaptation and effective use of, the Ground Controlled Approach System for safe landing of aircraft under all weather and traffic conditions." He was selected by an NAA-appointed committee as the person who has contributed the most to aviation in the preceding 12 months.

Luscombe Reports Profit

Operations by Luscombe Airplane Corporation for the three months ended September 30, 1946, resulted in a net profit of $149,064, or $0.27 per share of outstanding capital stock, L. H. P. Klotz, president, has announced. Net sales for the period amounted to $1,964,474. Assets of the company increased from $2,618,372 on June 30, 1946, to a total of $2,994,104 on September 30.

Consolidation Terminal for Non-Scheduled Carriers

The first "union station" for chartered aviation industry on the Eastern Seaboard, soon to be in operation at New York City, will be a consolidation terminal for freight and passengers to be transported via charter aviation companies on a contract basis to all points of the country, according to Malcolm L. Eno, executive vice president of the Institute of Air Transportation.

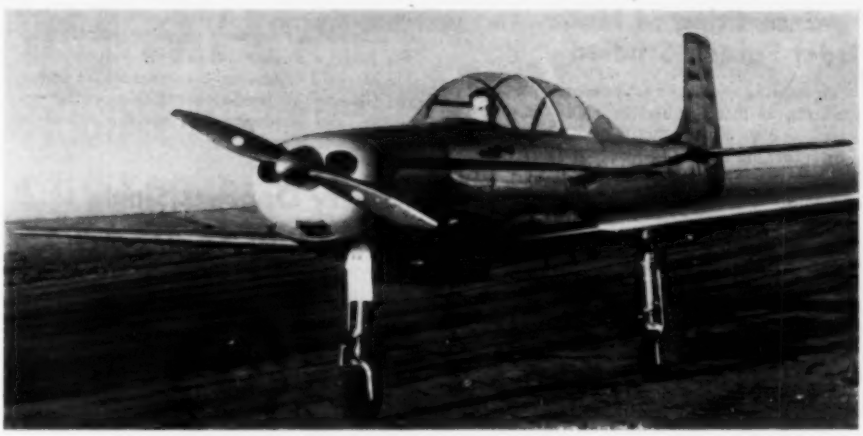
The formation of a maintenance advisory board to establish maintenance regulations and standards for charter airlines has also been announced.

Damon Warns PAA Routes Would Cripple American

If Pan American Airways is granted 12,000 miles of domestic routes, American Airlines will be pulled down from a $10,000,000 profit to a $9,000,000 annual loss, Ralph S. Damon, president of American, testified at the CAB hearing on Pan American's application. "Were this disaster to occur to American, it is an understatement to say that other carriers would suffer severely," Damon said.

Federal Agencies Trim International Travel Tape

Faster service in clearing customs, public health and immigration is in the offing for international air travelers following a revision of regulations by three federal agencies, the Air Co-ordinating Committee has announced. The revised regulations provide for new simplified and standard forms of manifests for passengers, cargo, and alien employes entering and leaving the country by air.



150-MPH. CRUISING SPEED WITH 85 HP. is claimed by Aero-Flight Corp., of Buffalo, N. Y., for its "Streak," an experimental all-metal craft seating two persons in tandem. Few details were released but the firm said its designers are a group of engineers "concerned throughout the war with high-speed military aircraft including jet propelled types."

Strebig of AP Heads TWA Contest Winners

For the second straight year James J. Strebig, aviation editor of the *Associated Press*, has been named winner of the newspaper open class division of Trans World Airline's annual aviation writing and photographic contest. The nineteen winners, chosen from sixty applicants, have recently been announced by TWA.

In the photographic division, first prize went to Howard Ballew, Los Angeles *Herald Express*, for his photo "A Modern Pegasus", showing aerial transportation of race horses. Strebig and Ballew will each receive cash awards of $250 and commemorative plaques.

Albert I. Prince, Hartford (Conn.) *Times*, won first place in the class for newspapers under 100,000 circulation; John Paul Andrews, *Air News*, won first place in the magazine class, while Arthur Harris, managing editor of *Aviation Maintenance and Operations*, won first in the technical division.

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Air-Expediting of Mail Order Parcels Studied

Commenting on an experiment for air-expediting of merchandise for mail order customers, a new service by U. S. Airlines for Aldens, Inc., of Chicago, Gael Sullivan, Second Assistant Postmaster General, said: "The fast development . . . of air cargo has been watched by the Post Office Department with keen interest. In our plans for a sound and co-ordinated air parcel post system, we see in this practical experiment of expediting shipments to mail order customers a test that will bear out many of our convictions about the need and implementation of domestic air parcel post."

With Atlanta as the distribution point for initial operations, each day's orders received by Aldens from states in the Atlanta traffic area will be flown from Chicago to Atlanta for quick dispatch by rail on the same day.

Aviation Industrial Planning Under Way

Purchase of production planning data from industry is one of the latest air industrial preparedness planning projects, according to officials at Air Materiel Command, Wright Field, Ohio.

Twenty-two aircraft and aeronautical equipment manufacturers are currently preparing planning studies to be analyzed by the AAF, in co-operation with the Bureau of Aeronautics, prior to the formulation of production plans which could be put into effect immediately in an emergency. These studies will be exchanged with the Navy Bureau of Aeronautics, which is engaged in a similar program.

The fundamental requirements of air industrial preparedness planning are an adequate research and development program, maintenance of a healthy nucleus of aircraft industry capable of rapid expansion, assurance of an industrial reserve of production facilities and resources, and a program of specific industrial preparedness plans.

Industry Opposes Single Agency for Ace Transport

Opposition to the formation of a single regulatory agency for all forms of transportation has been expressed by the Aircraft Industries Association, in response to a questionnaire submitted by the House Committee on Interstate and Foreign Commerce. The public might well profit, however, by a separate regulatory agency for our three general forms of transportation, the Association said.

The declarations of policy contained in the Interstate Commerce Act and the Civil Aeronautics Act of 1938 are adequate according to AIA, and a change involving a more extensive entry into the field of management would place the government in the transportation business and would impair national security.

Large Order for P-84's

New military aircraft orders totaling more than $25,000,000 have been awarded Republic Aviation Corporation by the Army Air Forces, according to the Air Materiel Command. The bulk of the order is for P-84 Thunderjets, the first American jet fighter planes to exceed 600 mph. as standard performance. The new contracts bring Republic's current backlog of military aircraft projects to more than $69,000,000. Including commercial orders, the backlog is more than $100,000,000.

U. S. Section of LIA Honors Brazil Manufacturer

In recognition of outstanding accomplishments in developing South American aviation, the first postwar award of the American section of the Ligue Internationale des Aviateurs has been given to Francisco Pignatari, youthful Brazilian airman, aircraft manufacturer and industrialist.

Other recipients of the infrequently awarded diploma include Rear Admiral Richard E. Byrd, Orville Wright, Captain Edward V. Rickenbacker, General James Doolittle, Charles A. Lindbergh, and Glenn Curtiss.

The presentation was made by Colonel Charles W. Kerwood of Fairfax, Va., president of the league's American section, and Senator Edwin C. Johnson of Colorado.

Freight Tonnage Mounts

Air freight shipments of the Independent Airfreight Association, Inc., totaled 3,686,000 ton-miles for November, setting a new monthly record. It exceeded the October total by more than 300,000 ton-miles. Members of the association are Willis Air Service, Inc., U. S. Airlines, Slick Airways, Inc., Flying Tiger Line and Flamingo Air Service, Inc.

Jet Fighter on Floats

The first jet-propelled fighter flying-boat, the British Saunders-Roe SR/A1, expected to fly in January, will eliminate the problem heretofore encountered in obtaining fighter performance in a flying-boat. The necessity to provide sufficient water clearance for the propellers will be eliminated.

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Pistons and Props Given 5 Years More

Jet turbine military fighters will predominate over piston engine fighters within five years, but the piston engine will most probably dominate the long-range field in fighters as well as commercial transports for a minimum of five years more. These predictions were made recently by Leonard S. Hobbs, engineering vice president of United Aircraft Corp.

Commenting on the future of aircraft power plants, he said the much-discussed jet transport will require at least four years of testing before becoming efficient. Rockets, ram jets and their variations probably will not offset the aircraft field during the next ten years, although they will power pilotless missiles. As for the aircraft propeller, a 100 mph. improvement is expected, but because of its efficiency under 500 mph. it will be in extensive demand during the next ten years.

Martins for South America

The Argentine airline Aeroposta Argentine has placed an order for five high-speed Martin 2-0-2 airliners with The Glenn L. Martin Company. This order marks the third sale of Martin transports to South American airlines.

PERSONALS

DR. VANNEVAR BUSH and ARTHUR RAYMOND have been reappointed for 5-year terms to the National Advisory Committee for Aeronautics. Rear Admiral LESLIE C. STEVENS, assistant chief of Bureau of Aeronautics in charge of research, development and engineering, has been appointed to the NACA replacing Rear Admiral LAWRENCE B. RICHARDSON, retired. . . . S. E. VORAN, former account executive for Fuller, Smith and Ross, Inc., has been named advertising manager of Parker Appliance Company, Cleveland.

RUSSELL C. HATTON, formerly with Lockheed, has become associated with Vickers, Inc., as aircraft sales and application engineer at Beverly Hills. . . . Air Commodore FRANK WHITTLE, RAF, inventor of the turbo-jet engine, has received the Guggenheim Medal for achievement in aeronautics. . . . CYRIL C. THOMPSON, former vice president of United Air Lines, has been appointed air transport representative by Santa Fe Railway System. . . . ROBERT B. KINKEAD, Boeing Aircraft, was recently elected chairman of Export Committee of Aircraft Industries, succeeding J. M. BARR, United Aircraft.

Former AAF Captain STEPHEN F. LEO has been named civilian advisor to Brigadier General EMMETT O'DONNELL, JR., Director of Information. . . . JACK D. PORTER is new manager of airship advertising for Goodyear Tire and Rubber Co. . . . Appointment of L. H. MOULTON as national sales director and D. T. BUIST, assistant national sales director, has been announced by Turco Products, Inc., Los Angeles. . . . LLOYD R. WILSON, JR., former group navigator, 15th Air Force, is new member of national headquarters staff of Aircraft Owners and Pilots Association. . . . KENNETH R. MacDONALD, aviation manager, San Francisco Chamber of Commerce, was recently elected secretary of Western Aviation Conference. . . . Resignation of HARRY R. STRINGER as vice president in charge of traffic, mail, advertising and public relations, has been announced by All American. Stringer has been named assistant to the chairman of the National Federation of American Shipping's Sea-Air Committee. . . . Appointment of naval aviation Lt. Comdr. BECKWITH HAVENS as sales director of Embry-Riddle Co. of Miami and New York, has been announced.

DAVID MARSHALL, formerly with Curtiss Wright, has been appointed assistant to the director of public relations for American Airlines. . . . JOSEPH F. McCARTHY has resigned as finance chairman and a director of UNITED AIRCRAFT CORP. . . . Ex-Air Forces research physicist Lt. Col. LLOYD F. RYAN is now supervisor of engineering laboratories for Ryan Aeronautical Company. . . . Former director of industrial engineering and treasurer of TWA, JOHN B. THURSTON has established his own firm of management engineers and aviation consultants known as Thurston and Company, with offices at 40 Wall St., New York.

CHARLES FRIEDMAN, assistant sales manager of Communications Division, Radio Receptor Co., New York, has been promoted to sales manager. . . . DONNELL W. DUTTON, director of the Daniel Guggenheim School of Aeronautics of the Georgia School of Technology, has been appointed as a scientific research advisor in research and development division of War Department general staff.

Army correspondent LOUIS W. DAVIS is now assistant to the general manager of the Fairchild Personal Planes Division. . . . Resigning the vice presidency of American Airlines, TERRELL C. DRINKWATER has become president of Western Air Lines upon the resignation of WILLIAM A. COULTER. . . . H. T. SAGERT has resigned as sales manager of Aviation Radio Division of Lear, Inc.

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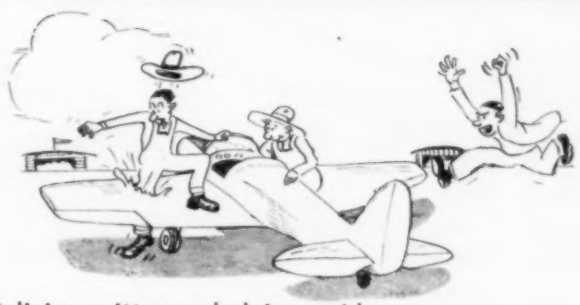

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PORTS OF CALL

Birmingham, Ala.—*by Edith Wideman.* Municipal Airport is getting a face-lifting with its new black top parking area and flower bed re-arrangement. Hank Cross, the new manager, tells us that he expects the face-lifting project to be considerable when the administration building enlargement is approved. The aviation committee of the Chamber of Commerce is supporting this move as is the Birmingham Aero Club, its board having passed a resolution to that effect at its last meeting. The aviation committee of the C of C is also working on getting an air mail post office established at the airport. Postmaster Allbright says it will cut the time in handling through mail by several hours and is heartily in favor of this workable plan. In the midst of doing all this the committee is still trying to prevail on the powers that be to keep the airport restaurant open all hours to serve coffee at least to the after-midnight transients and workers.

The Aero Club cocktail-banquet party was a huge success with General William S. Hall making the address. He was introduced by Steadham Acker. President Dick Parker presided with great gusto—all the aviation notables hereabouts were present having the usual good time.

For the first time in the University of Alabama's history the Crimson Tide took to the air—found it just what they'd been looking for when they flew to Boston via PCA and Northeast and returned direct by Eastern.

Hayden Brooks, chairman, state aviation commission, says that the Federal aid airport program for this state has Asa Rountree, the aviation director, and the five engineers of the Department of Aeronautics on the hop and fly answering requests from cities, towns, countryside and private operators to inspect proposed airport sites. He also tells us that a humdinger of a meeting was held with the CAA highway department representatives and the Commission—the discussions went on for hours and at length on how the state can cooperate with CAA in regard to flying safety regulations.

Southern Airways has taken on some more distributorships for the Seabee in Eastern Tennessee, Georgia and Western South Carolina.

A meeting of Piper distributors here was a successful pow-wow with more than twenty dealers represented. And speaking of Piper, W. T. Piper, THE Mr. Piper, is to speak to the Engineers Club here soon and private fliers are all ears.

Raymond Thomas, airport manager for Southern Airways at Huntsville, has been promoted to supervisor of airports—which covers SA's seven airports. Bryan Hammett has taken over the Huntsville operation.

Mike Banton, state wing commander of CAP, tells us he is struttin' a new Stinson and asked us to go for a ride so goodbye and happy new year to all you high-flying guys and gals.

California—*by Tony Hagmann.* Everybody is crying in Los Angeles—not about the stock market or the labor situation, but over a smog condition which gives everybody the red-eye and not from drinkin'. Everybody will soon have to move back to Texas or Iowa or get a reputation for hitting the corn on the heavy side—and this is a pure city. They keep telling us.

So a tour around the airports makes you feel like a wake was in order—ain't any flying to speak of except airline. The chamber of commerce is about to blow its top and has imported a smog expert from the East, who needed a winter vacation anyway, to find the cause. This has nothing to do with the fact the head of the C of C and the Mayor of the once-fair city had to land at Palmdale, about 60 miles north, when flying back from Mexico. However they were lucky—the bus only rattled over the larger bumps. Next case, brother.

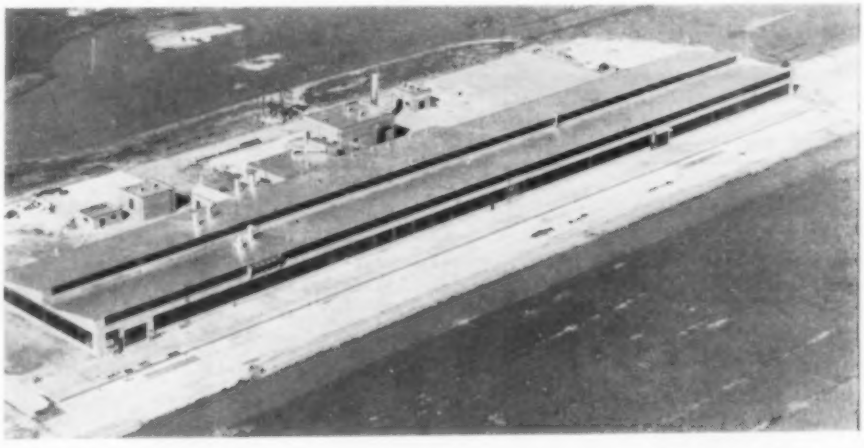
This we hate to report, but it ain't too hard to buy an airplane this month out here. Perhaps it's caused by the fact it's hard to put an airplane in a Christmas stocking, but we have noticed a certain amount of old-fashioned courtin' toward the customers with enough jingle in their pockets to buy a plane. Whereas they might have received a brush-off from a distributor with no planes to deliver in March—in December they get a cushion on the seat of the signing chair. And a ten-cent coke if they want it. Of course nobody would faint if a customer came in with his fist full of green stuff and demand a plane right now but they might send for a doctor. Not for the customer, for themselves. We hope you know we're kiddin'. Anybody can sell planes, they say.

Lockheed Air Terminal tossed a dinner, complete with a statement from their president, for the West Coast Aviation Writers over the hot subject of landing fees. "Due to the lessened hazards, danger of collision and the fact the heaviest airline traffic has been moved to Los Angeles Municipal, landing fees for private planes are a thing of the past," he said to the group. He did indicate that if the time came again where it was "dangerous" to the best interests of all, they might be re-instated. All you need now to land at the Burbank Terminal is two-way radio to follow the field rules.

The night the dinner was held great confusion was apparent from passengers who went to Lockheed instead of LA Municipal—thirty miles away. Most flights terminate and originate at the field once known as Mines. The bartenders in the cocktail lounge were playing gin (bartenders don't DRINK GIN) . . . the once-rushed waitresses were smiling and huddled in little groups flappy-flapping about the lack of customers, and the sandbox conversation went something like this, "My brother just back from China said it was all politics and the fog was just as bad at the other field." Or "The red-cap said he didn't care, he was tired of carrying passengers' bags and he was going to Palm Springs for a winter vacation." Red-caps are in the high income bracket out here.

Lockheed Terminal officials remained calm. Knowing they have a three-million-dollar investment in that field as surely as a tax collector, they'll come up with something to recapture their business. Not landing fees. This leads up to tell you Los Angeles Municipal Airport is handling the airline business, mail services have moved over there and Woody De Silva, the airport manager, can settle down to working only 24 hours a day.

Now for a little personal stuff . . . Don Marshall, on leave from Lockheed, got married to a California beauty. . . . Alexander Tucker, a colonel in the ATC during the war—strictly in the VIP class—has returned to lawin' for movie moguls in Beverly Hills. . . . Howard Ailor came out to pick up his Navion. . . . Clark Gable is reported to have bought one. . . . Joe Towle and Tony LeVier took the Constitution off as easy as a strip tease artist gets down to the bottom of things, but quicker. . . . And this reporter has her passport for South America in the left hand pocket. She expects to leave for the "le gusta" land in January.



(Cessna Photo.)

EXPANSION OF MIDWESTERN LIGHTPLANE PRODUCTION during 1946 included Cessna Aircraft Company's operation of its Hutchinson, Kansas, branch plant, built in 1942 for war work. Two-place all-metal Model 140 Cessnas in large quantities have been delivered and the firm's new 4-place prototype, yet to be announced, is promised for delivery during 1947. The Hutchinson plant has 122,000 square feet of floor space and is equipped with some of the industry's most modern and efficient machinery.

WINGLESS GYRO-GLIDER developed by General Electric has no power source and, when released at altitude, descends with less speed than a parachute and can be landed in extremely small areas. The 120-pound aircraft is capable of lifting nearly 300 pounds in addition to its own weight and is expected to have commercial possibilities in isolated areas without adequate landing fields.

Dallas—*by Lawrence Pool.* Among the first Air National Guard units in the 10th Army Air Force area to be activated are 136th Fighter Group headquarters and the 181st Fighter Squadron at Hensley Field. Lt. Col. M. D. Willis, deputy group commander acting in command of headquarters, said P-51's will be operated by pilots of the outfit, with a C-47, and some A-26's and AT-11's being assigned also. He urged ex-enlisted men with proper MOS numbers to enroll in the units.

K & G Aero Repair at Speight's Airport is opening a new shop at Avenger Field, Sweetwater, Texas. Lonie Yokum and W. T. Gooden will manage it. . . . Jacobs Air Service, Highland Park Airport, is now open for business in its new hangar. Sam Houston of Park Cities Aero Service is passing out stogies and beaming all over the place. It's a new girl, doing nicely, thanks. . . . Air Accessories, Inc., of Fort Worth, has its sales room at 1400 Henderson shaping up nicely. Officers of the organization are W. I. Spitler, president and B. J. Anthis, vice president. . . . Jimmy Marshall has a new Navion in his showroom at Marshall's Field.

Ed Travis, Fourth Region CAA Airport Administrator, and his greatly expanded staff are snowed under with applications for Federal airport aid.

Ben Branson and Fred K. Dick, former Lockheed test pilots now flying company planes out of Dallas, had a reunion with some of their former associates when Jim White and Little George McIntyre brought a new Constellation to Love Field to demonstrate to Braniff. . . . About the snazziest C-47 conversion job we've seen—certainly the quietest—was Sperry's flying laboratory which George Wies demonstrated to airlines and press here. Al Lodwick's experts did the conversion in Florida.

El Paso, Texas—Streamer-cutting contests, air races, short take-offs and spot landings were included in civilian plane contests at the International Aviation Celebration, Municipal Airport here December 12 to 15. Approximately 150 pilots from Mexico, Texas, Oklahoma, Arizona and New Mexico participated.

Radio-controlled planes, a V-2 rocket exhibition and a "sham" battle highlighted Army and Navy aerial displays during the show, sponsored by the Chamber of Commerce and aviation distributors of El Paso.

Photogrammetry Meeting

The American Society of Photogrammetry, a group of aerial photographic, mapping and charting experts, will hold its winter meeting January 22-24 in Washington. Gerald Fitz Gerald, U. S. Geological Survey, will be succeeded by Revere G. Sanders, Fairchild Camera and Instrument Corp., as president of the society.

New Weather Laboratory

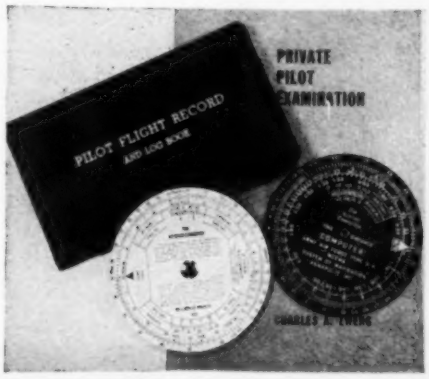
An AAF testing laboratory able to reproduce the worst type of inclement weather encountered in any part of the world is being built at Wright Field, Ohio, Air Materiel Command officials have announced. Designed to be the country's most modern environmental testing facility, the laboratory will deal with vibration as well as strictly climatic factors in testing AAF equipment and supplies.

ATA Continues Research for All-Weather Flying

With emphasis placed on the continuation of the Air Navigation Traffic Control program, for research toward the accomplishment of all-weather flying, the Air Transport Association has concluded a series of meetings keynoted by plans to improve the safety, comfort and dependability of scheduled airline operations. During the meetings the ATA Labor Relations Department was discontinued.

? WHO ? ? ?

WHAT ? ?



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New B2 Pilot Caps, dk. brown leather, sheepskin lined, long visor, $3.75. B3 Pilot Jackets, dk. brown accrolite leather, sheepskin lined, zippered, $32.95. A-11 AAF Aviator's leather Helmets, sponge rubber ear cups, $3.45. Pilot Gauntlets, dk. brown goatskin, 1 finger mitten type, lamb-lined, $12.50. Pilot Boots, A6 Army type, dk. brown, sheepskin lined, zippered, lg. size, $16.95. GI khaki wool Gloves, leather palms, $1.95. Regular knit gloves, 95c. Wallets, genuine morocco leather, 6 compartments, $2.25. Genuine brown calf wallet, the finest, $5.40. License cases, (P-1) genuine morocco leather, $1.80. P2 sheepskin leather, $1.30 (incl. tax). Fischer goggles, broad view, glareproof, $17.50; clear, $15. Skyway, glareproof, 14.50; clear, $12. Compasses, Longines-Wittnauer pocket-watch type, $2.25. **FLYING EQUIPMENT CO., 1641-3 W. Wolfram St., Dept. SF, Chicago 13, Ill.**

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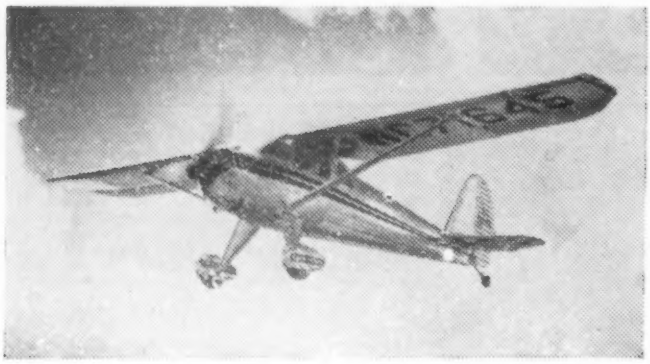

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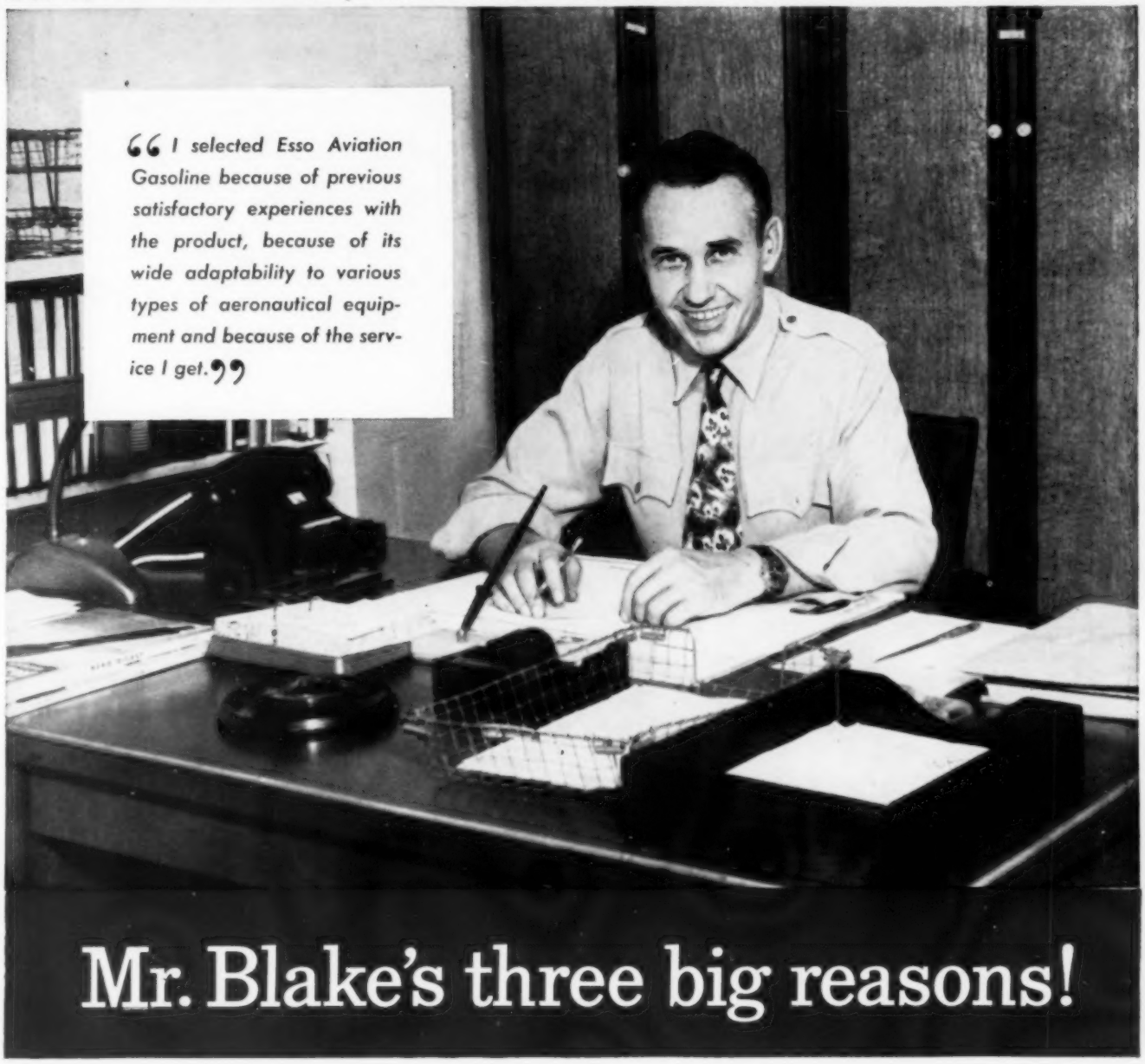
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